

Historic, Archive Document

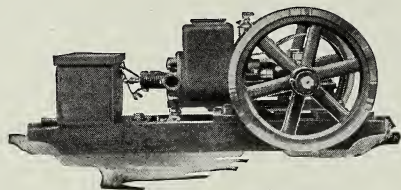
Do not assume content reflects current scientific knowledge, policies, or practices.

GIFT
JUL 25 1916

Cleanings in Bee Culture



THE BUSY BEE



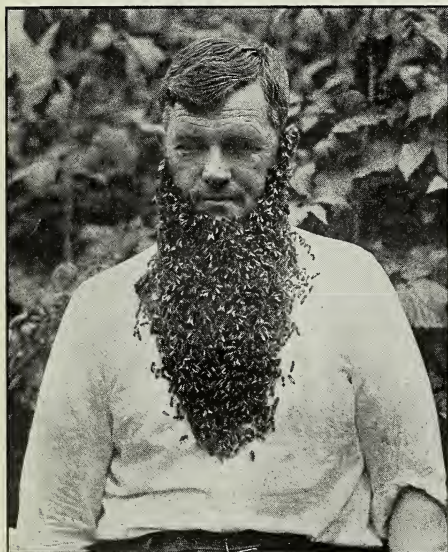
1 1/2 H. P. Gasoline Engine

A faithful worker and first assistant to the Bee-keeper. Will operate extractor, pump, grindstone, washing machine, etc.

The A. I. Root Co. endorse this engine. Ask them.

GILSON MFG. CO.

1000 Park St., Port Washington, Wis.



"Our Bees are Gentle"

Nope, you won't get stung if you buy our queens.

Our queens are very prolific. Bees swarm but little, and are of a beautiful light leather color. Our queen booklet, telling how to rear the finest queens, is free for the asking. Queens to October 1, one, \$1.00; six, \$5.00; 12, \$9.00. Bees by the pound to Sept. 1, 1/2 lb., \$1.00; 1 lb., \$1.25; 2 lbs., \$2.00; 3 lbs. \$2.50. Safe arrival and satisfaction guaranteed.

JAY SMITH, 1159 DeWolfe St., Vincennes, Ind.

GET THIS BOOK

Galloway's wonderful book of bargains, describes fully and prices Galloway Cream Separators, Manure Spreaders, Gasoline Engines, Farm Tractors. Saves 1-3 to 1-2 on prices usually asked. Also lists and prices farm implements, fencing, auto supplies, everything for farm and household.

SAVE MONEY

By asking for this 260-page book today. A postal will do. First edition exhausted; second edition this bargain book now ready.

WM. GALLOWAY CO.
Dept. 767 Waterloo, Iowa

DAISY FLY KILLER



placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all seasons. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

EMBARGO ON BEE SUPPLIES

Pennsylvania, New Jersey, New York, and New England states beekeepers should not delay putting in their stock of supplies as early as possible. The eastern railroads are so heavily laden with freight it is indefinite as to just how long it will take to receive goods after they leave the factory or dealer. Ordering your requirements a month earlier than usual will cost no more, and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur in transit.

As never before we are especially prepared to take care of the beekeepers' orders and give prompt service. Above all, we assure the purchaser of satisfaction, and we never consider a deal closed until we feel sure our customer has received the guarantee of satisfaction which goes with every package, crate, or box leaving our factory.

Those beekeepers who have not received a copy of our new RED CATALOG should not hesitate to send for a copy. It gives descriptions and prices of all the beekeepers' supplies, from the requirement of the smallest to that of the largest beekeeper. A postcard will bring it to your address free.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.

"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

Queens! Queens! Queens!

We will make a specialty of shipping Queens, Nuclei, and Full Colonies from Florida during the present month. We are breeding from queens that produced a surplus of 300 pounds per colony in a 24-day honey-flow in Florida, and that are unexcelled for prolificness, gentleness, and honey-gathering.

When you order queens from us you get **QUALITY, PURITY, AND HONEY-GATHERERS**. We can fill your orders from our famous Honey-gathering Strain for Queens, Nuclei, and Full Colonies promptly, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. Write for special price on orders of 50 or more. We ask you to give us a trial and let us prove to you that our stock is unexcelled by anything on the market.

Island-bred Italian Queens

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00
Tested Breeding Queens, \$5.00 and \$10.00. each			

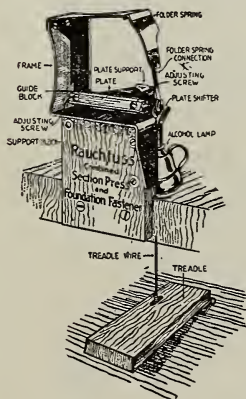
Prices on Nuclei and Full Colonies with-out Queens

1-frame Nucleus, \$2.00	5-frame Nuclei, \$5.00
2-frame Nuclei, \$3.00	8-frame Colony, \$8.50
3-frame Nuclei, \$4.00	10-frame Colony, \$10.00

Address all Communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

Make More Profit by Reducing Cost of Production



Comb-honey producers can put up their sections complete in less than half the time with a **RAUCHFUSS COMBINED SECTION-PRESS AND FOUNDATION-FASTENER**. Now used by hundreds of Western beekeepers who would not think to be without it any more.

IT IS GUARANTEED TO DO MORE AND BETTER WORK THAN ANY OTHER DEVICE ON THE MARKET. Your money back if not entirely satisfactory. Made for $4\frac{1}{4} \times 4\frac{1}{4}$ and also 4×5 sections.

PRICE \$3.00, COMPLETE WITH LAMP AND TREADLE, DELIVERED POSTPAID ANYWHERE IN THE UNITED STATES. Write for 68-page illustrated catalog of the best bee-supplies made.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
1424 Market Street
Denver, Colorado.

WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for **GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING** qualities have **ESTABLISHED A REPUTATION**. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested	during June, \$1.50; in July, August, and September, \$1.00
Select Untested	" " " " " 1.75 " " " " 1.25
Tested	" " " " " 2.50 " " " " 2.00
Select Tested	" " " " " 3.50 " " " " 3.00

Prompt delivery assured.
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Managing Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, E. G. Baldwin, Grace Allen.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, La Korrigane, Avenue de la Gare. A Juan-les-pins. France.

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

Contents for July 15, 1916

EDITORIAL	581
Net-weight Law	581
White Clover vs. Alsike	581
Smelting Companies of Canada	581
Honey-crop Conditions	582
Bee Paralysis, Bocoek on	583
Bees and Blight	584
STRAY STRAWS	585
SIFTINGS	585
Sweet Clover Not a Weed	586
BEEKEEPING AMONG THE ROCKIES	587
Bees Prefer Old Combs	587
Climatic Conditions and Honey	587
BEEKEEPING IN THE SOUTHWEST	588
Removing Surplus Honey	588
Hives, Dovetailed, the Best	588
FLORIDA SUNSHINE	589
CONVERSATIONS WITH DOOLITTLE	590
Chilled Bees	590
GENERAL CORRESPONDENCE	591
Cost of Honey Production	591
Queen-rearing, Easy	593
Bees for Students	595
Honey, to Remove from Cappings	596
Bees for Cleaning Comb	597
Swarming Problem	599
Law of Swarming	600
Hints on Queen-raising	601
Supers of Honey on Toboggan Slide	603

"Fording" Comb-honey Outyards	604
Bee-clubs for Boys	604
Insects and Fire Blight	60
Insects and Fire Blight	605
Comb Honey in Out-apiaries	608
Poetry and Prose	609
Advertising Honey	610
Heading off Swarming	610
Ten-frame Hive as a Brood-nest	611
HEADS OF GRAIN	612
Black Italian Queen a Freak	612
Swarm Refuses Hiving	613
Skunks in Apiary	614
Honey in Mails	614
Red-clover Bees	615
Barbed Wire in Hive-bottoms	615
Pollen Ration Necessary	616
Sweet Clover in Pastures	616
Beekeeper without Hands	616
OUR HOMES	617
Warship, Cost of	618
Shoemaker, Skeptical	618
Lady Eglintine	619
HIGH-PRESSURE GARDENING	623
Sweet Clover in Kentucky	623
Sweet Clover and Alfalfa	625
TEMPERANCE	625
Saloon-keeper Heavily Sentenced	625
Drunkenness before Birth	626

W. H. Laws Talking Queens

We have taken care of every queen order the present season, altho more than 2000 queens were mailed from the Laws yards in past 60 days, but in order not to get swamped we had to withdraw our ad. from GLEANINGS.

We are well supplied with queens, both tested and untested, also as fine a lot of breeders as possible to produce. Any of these can go out by return mail. Samples of live bees from my breeding queens will be mailed free to prospective buyers on request.

The time is approaching when every beekeeper should see that his colonies are supplied with strong young queens for another season. To do this you will need a first-class breeding queen now, or make your arrangements with me for queens to be introduced near the close of your honey-flow.

Prices as follows: Untested, each, 75 cts.; 12, \$8.00; 100, \$60.00. Tested, each, \$1.00; 12 for \$10.00; 100 for \$75.00. Breeding queens, \$5.00 each; six for \$25.00.

W. H. Laws, Beeville, Texas

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their
music, and taste honey
are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-
months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

AT. SPITZER
PRESIDENT

E. R. ROOT
VICE-PRESIDENT

E. B. SPITZER
CASHIER

ASSETS OVER ONE MILLION DOLLARS

ITALIAN QUEENS

Untested, 75 cents each

Tested, \$1.00 each.

Satisfaction in all cases or money refunded.

Been breeding queens for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CHICAGO.—There has been very little movement in honey at any time during the past two weeks. Prices are without change for the lack of sales on which to establish a new basis. The bulk of the comb is selling at about 13 cts. per lb.; extracted, 7 to 8. Beeswax brings from 30 to 32.

Chicago, July 3.

R. A. BURNETT & CO.

KANSAS CITY.—The honey market has been very slow on account of the great amount of native honey that is coming to market. The price ranges around \$3.50 for the best white-clover honey, 24 sections to the case. Extracted honey is a little slow, price ranging from 6 cts. to 8 cts., according to quality.

C. C. CLEMONS PRODUCE CO.

Kansas City, July 7.

ST. LOUIS.—The demand in this market for comb honey has been very light lately. Some new extracted honey has arrived, but receipts have so far been light. No. 1 bright amber comb honey is bringing from \$2.50 to \$3.00; No. 2 from \$2.50 to \$2.75; No. 1 southern extracted amber in barrels from 5 1/2 to 6; in cans from 6 to 7, according to quality; dark from 1/2 to 1 ct. per lb. less. Beeswax is quoted at 29 1/2 for pure; impure and inferior, less.

St. Louis, July 3. R. HARTMANN PRODUCE CO.

I am paying in Cuba for honey from 44 to 45 cts. per gallon.

ADOLFO MARZOL.

Matanzas, Cuba, June 27.

Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

"If Goods are Wanted Quick Send to Indianapolis"

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

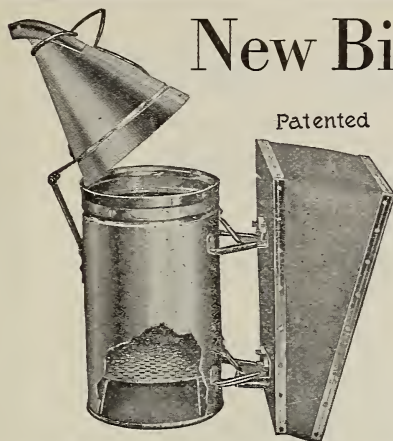
If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

Let us have the pleasure of mailing you our free catalog.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue



New Bingham Bee Smoker

Nearly forty years on the market and the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

Smoke Engine, 4-inch stove	28 oz.	\$1.25
Doctor, 3½-inch stove	26 oz.	.85
Two larger sizes in copper extra50
Conqueror, 3-inch stove	23 oz.	.75
Little Wonder, 2½-in. stove	16 oz.	.50
Hinged cover on two larger sizes. Postage extra.		

A. G. WOODMAN COMPANY
Grand Rapids, Michigan

For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.

PENNSYLVANIA BEEKEEPERS

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

If you need supplies or bees shipped promptly write us. Our stock is complete, no delays. Chaff and single-walled hives. Bees by the pound, nucleus, or full colonies. Untested queens, \$1.00; tested, \$1.25. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

LOS ANGELES HONEY CO.
633 Central Bldg. . . . Los Angeles, Cal.

**Buyers and Sellers
of Honey and Wax**

Write Us for Prices when in the Market



Established 1885

A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

For Quick Shipments
Write or Telegraph
Superior Honey Co.
Ogden, Utah

Branch at Idaho Falls, Idaho

Beehives, honey cans, and "everything in bee supplies." Manufacturers of "Superior" foundation (Weed process).

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid
Clubbed with "Gleanings" one year, \$2.75

THE A. I. ROOT COMPANY
Address the Medina Office

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

ADVERTISING RATES

Based on 20,000 circulation guaranteed.

Display, per agate line, flat, 15 cts.

Quarter page, \$8.00.

Half page, \$15.00.

Full page, \$30.00.

Outside back cover page, 25 per cent additional.

Special and guaranteed positions, 25 per cent to 50 per cent additional.

Classified, per counted line, flat 25 cts.

(Discounts on classified advertising: 10 per cent on 6 continuous insertions; 15 per cent on 12 continuous insertions; 25 per cent on 24 continuous insertions.)

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

Copy subject to editorial approval.

SIZE AND MAKE-UP

Column width, 14½ ems (2¾ inches).

Column length, 8 inches.

Two columns to page.

Number of pages each issue, 64.

Forms close 10th and 25th of each month.

THE A. I. ROOT COMPANY, Publishers
MEDINA, OHIO

Index to Advertisements

BANKING BY MAIL

Savings Deposit Bank....575

BEE SUPPLIES

Clemons Co.627
Colorado H. P. Ass'n....573
Dadant & Sons.....580
Dunkel, E. M.577
Falconer, W. T.571
Hunt, M. H.576
Jepson, H. H.577
Lewis, G. B.580
Nebel, J.577
Pouder, W. S.576
Root Co., Mechanic Falls. 577
Rot Co., Syracuse579
Stringham, I. J.577
Superior Honey Co.577
Toepperwein & Mayfield. 634
Woodman, A. G.577

BEEES AND QUEENS

Achord, W. D.cover
Berry, M. C.627

Caraway, B. M.632
Leininger, F. S.627
Forehand, L. L.627
Forehand, N.628
Laws, W. H.575
Lockhart, F. A.632
Moore, J. P.628
Marchant, J. E.627
Mott, E. E.627
Penn Co.628
Phillips, G. W.627
Quirin, H. G.628
Robey, L. H.575
Smith, Jaycover
Stover Apiaries627
Wardell, F. J.573

CLASSIFIED ADS.

Bees and Queens629
For Sale629
Help Wanted631
Honey and Wax Wanted. 629
Honey and Wax for Sale. 629
Patents629

Real Estate629
Wants and Exchanges....629

HONEY-DEALERS

Los Angeles Honey Co....577
Muth Co., F. W.572, 633
Weber, C. H. W. & Co....579

LAMPS

Best Light Co.cover

MACHINERY

Gilson Mfg. Co.cover
Galloway, W.cover

MISCELLANEOUS

Somers, Haroldcover
Am. Cor. Law School....cover

NAVIGATION

D. & C. Navigation Co....633

PATENTS

Williamson, C. J.577

PUBLICATIONS

Guide to Nature575

NOW IS THE TIME

To order your shipping cases and
thus have every thing in readi-
ness for marketing your honey

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the beekeeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.
2146 Central Avenue

What do you know about that

We are getting an almost innumerable number of orders to go by parcel post --- a great thing for beekeepers on rural delivery. BUT REMEMBER to always include enough in the amount sent to cover the postage required. . . .

For instance, if you are within 150 miles of Syracuse, and need 500 sections, we can mail them for 41c; 250 sections for 21c, and 100 sections for 11c. Foundation in 5-lb. lots, can be mailed for 11c; 2 lbs. for 7c; 1 lb. for 6c. Always figure postage more than foundation weighs. Rates inside of 150 miles once the total weight plus 4.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Nominated by Acclamation

Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

WHY IS THIS TRUE? BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who "has been at it" for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect? Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.

G. B. Lewis Company, Watertown, Wisconsin

Catalog on request giving nearest distributor.

DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor Home Department
H. H. ROOT, Managing Editor

E. R. ROOT, Editor

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

JULY 15, 1916

NO. 14

EDITORIAL

Reports Asked for

OUR subscribers and all others interested are requested to send in postal-card reports, consisting of not more than one or two sentences, on what the honey-crop conditions are. Do not make the reports long, as we cannot tabulate them. Report good, bad, and indifferent conditions. We want the truth, but be sure not to take more than two sentences.

We ought to have a report from every subscriber; that is, to enable us to determine the amount of honey and probable prices.

Summer Field Meet in Tennessee

THE following letter, just received from Secretary J. M. Buchanan, of Franklin, Tenn., will explain. It will be noted that E. R. Root, who is busy on the new edition of the A B C and X Y Z of Bee Culture, is on the program. He has made no definite promise that he will be present, but is making an extra effort to go.

Mr. Root:—You may announce that the Tennessee beekeepers will hold summer field meetings as follows: Nashville, Aug. 9, at the home of Mrs. Grace Allen, 4409 Charlotte Ave.; Hollow Rock, Aug. 10, at the apiary of L. E. Smith; Memphis, Aug. 11, at the Tri-state fairgrounds. Meetings to begin at 10 a.m.

There will be no formal program, but short talks will be given on pertinent subjects by Dr. Phillips, Frank C. Pellett, E. R. Root, Dr. J. S. Ward, J. M. Buchanan, Ben G. Davis, and perhaps others.

J. M. Buchanan.

Franklin, Tenn., July 5.

The Federal Net-weight Law on Local Sales

A CONSTANT and ever recurring question that comes up is this, and has been answered: "Is it necessary for me to mark the net weight on my sections of honey if I sell only in my own locality?" There is only one answer to this question, and that is, *no*.

But in view of the fact that honey produced by John Jones may be sold by Jim Brown in another state, it is always wise to play safe and mark every section with its minimum net weight in accordance with the federal law.

White Clover vs. Alsike

As mentioned elsewhere in this department, white clover is not yielding as heavily as alsike. While it is generally recognized that the latter is a better honey-plant per acre, yet for some reason this year white clover is not yielding quite in proportion to the amount of bloom in sight. We find a dozen bees on alsike where we find one on white clover. As the haying season is at its height, and alsike is being cut away, it is possible that the hot weather we are now having will stimulate the white clover so that it will make up for the cutting of the alsike. The rank growth of both clovers because of the heavy rains in the early part of the season may have a favorable effect upon alsike and unfavorable upon white clover. A little later on we shall be able to determine how much effect this had.

The Case of the Beekeepers versus the Smelter Companies in Canada Continued till October

ON page 215, and again on page 257, we stated that the beekeepers in the vicinity of Smithville, Ontario, had brought suit against a large smelting concern for alleged damage to the bees. In the case that was settled in Salt Lake Valley, Utah, a few years ago, by the smelter company paying \$60,000 to the beekeepers, the complaint was filed that the smelter fumes killed the bees and spoiled the vegetation on which the bees work. The Ontario beekeepers are claiming damages on the same grounds. That both sides may get a little more evidence, the case has been again continued until October, and in the mean time bee-

keepers in Utah, Colorado, and elsewhere, where the smelter fumes are said to have ruined or are ruining the beekeeping industry, are asked to communicate with Louis Minor, Smithville, Ontario, Canada, who seems to be handling the case for the beekeepers.

Of course, it goes without saying that the smelter people will endeavor to show that the loss of bees was due to some other cause than the fumes. Indeed, their attorney has written to us asking for particulars regarding bee paralysis and Isle of Wight disease. The presumption is that the defense will endeavor to show that the decimation of bees is due to one or the other of these two diseases. But they will have to show, also, of course, that it is in the locality.

The fact that the big smelters of the West settled with the beekeepers in the sum of \$60,000 would seem to indicate that the Salt Lake Valley smelters acknowledged the damage rather than fight it out in the courts.

This case in Ontario will be a hard-fought one, as both sides are preparing for a big battle. GLEANINGS will be glad to give its readers the benefit of any developments that may come up, with a summary of the proceedings, and the final verdict if any.

Honey-crop Conditions and Prices

A CAREFUL survey of the United States government weather maps, showing the weather conditions and the amount of precipitation throuth the clover belt of the country, and the reading of reports as they come in from subscribers all over the country, indicates that a crop of clover honey is probably assured. How large this crop will be it is a little too early to estimate. This is the way reports are coming every day, "Bumper crop of clover honey;" "heaviest flow in years;" "best ever;" "seems like old times;" "the oldest inhabitant never saw a white-clover crop at all comparable to that which exists around here this year;" etc. In fact, we have not seen an unfavorable report from any of the clover districts. There is yet from ten days to two or three weeks of bloom in sight. Many report one super filled, and bees at work in others. The flow from clover is a little slow, but steady when weather conditions are at all favorable. The excessive rains, according to the aforesaid government maps, have let up, and in their stead we have hot weather with occasional thunder-showers—just enough to keep the clovers in good condition and to stimulate new bloom.

There is a possibility and even probability that 1916 will go down as one of the biggest years for the production of clover honey that we have ever had.

Two or three years ago we had come to believe that the natural lime in the soil had become exhausted, and that there would never be as large a yield of clover honey as there had been in the old-fashioned days; but the heavy precipitation last year and the early part of this year would seem to indicate that the scarcity of clovers in districts was due not so much to lack of lime as to insufficient moisture in the soil. Abundant rains have put clovers back to their old prominence, and reports everywhere say the fields are white.

We had a call from Mr. R. F. Holtermann, of Brantford, Ontario, Canada, the largest honey-producer in Canada, and one of the largest in the United States. Said he, "If you think you fellows on your side of the line have good clover you ought to come over on our side."

While naturally conservative he believes he is going to have a good crop. Some of his very best colonies have two 12-frame supers of extracting-combs filled already, and he estimates that there is two weeks of clover still in sight.

Reports are rather meager and scattering for Colorado; but early in the season it was reported that there had been sufficient snow in the mountains to insure a crop of alfalfa. Prospects are good in Nevada and Idaho, and there will probably be as much of northern-grown alfalfa as formerly. But in New Mexico and Arizona, and southern California, the yield of alfalfa has suddenly slumped, particularly in Imperial Valley, where the beekeepers are somewhat discouraged over the situation. There has been from a light to a fair yield of mountain sage, but probably not enough to supply the general demand. In northern and central California the yield has been fair.

The season has been exceptionally good in Texas, and is starting up a little in some of the southern states. Conditions in the early part of the season in Florida were unfavorable, but are improving according to a late report from the southern part of the state.

PRICES.

This is a rather dangerous subject, as it is impossible at present to give any idea how prices will rule this year. They will probably be easier than last year in spite of the sharp advance of sugar. The fact that the housewives of the country are boycotting the sugar trust in all the large cities, and turning to other forms of sweet, partic-

ularly to honey, may have a tendency to offset the effect of a big crop. The general advance in all food products will have a decidedly strong tendency to hold honey up to its present level. But the probabilities are that along in September and October, particularly toward November, the prices on *extracted* clover will be somewhat lower than at present. Producers who have honey to sell would do well to get it on the market early; for when the laggards begin to dump their product prices may sag.

The supply of comb honey from last year is still large, and there is no question but that prices on comb honey are going to be easier than last year. A good many misinterpreted our advice to produce extracted instead of comb this season; but if they knew the actual market supply, so far as comb honey is concerned they would not be inclined to question our statements.

Taking it all in all, the reader should understand that it is still early to make any positive statement concerning the probable yield of clover honey thruout the United States. Weather conditions from now on may be unfavorable, with the result that the crop will be only half what indications now promise. At one of our outyards, where there has been a good deal of cutting of alsike, we are noticing a decrease in the flow of nectar, and the bees are getting a little cross, just as they always do when the flow begins to check up. While white clover is abundant, it is apparent it is not yielding as heavily as alsike. However, this applies only to our own locality. See another editorial on this subject.

A Representative from Great Britain Investigating Bee Paralysis in the United States

THERE have been reports of bee paralysis again this year; but so far nothing serious has developed in the northern states. Mr. C. H. Bock, of Newmarket, England, is now in this country under the direction of the Department of Agriculture of Great Britain to study the trembling bee disease or what showed itself in various places. He comes here for the sole purpose of ascertaining whether there is any relationship between the disease of Great Britain and something similar that has been making various outbreaks in this country. He is at present working with Dr. Burton N. Gates at Amherst, Mass. He has found the *Nosema apis*, supposed to be the exciting cause of the Isle of Wight disease in some American bees. While it has been determined that

this parasite is present in healthy bees, it is supposed that, under favorable environment and in some strains, it may develop something serious.

Mr. F. R. Beuhne, of Tooberac, Australia, had a very severe attack of what he believed to be bee paralysis. He finally developed a strain immune to the disease. With this strain he had no further trouble; but when he introduced another strain, bee paralysis broke out in all its fury. He naturally concluded that the exciting cause was present all the time, and that, when favorable subjects were introduced, they fell easy victims.

Mr. Bock expects to go to Washington, D. C., and, later, to Medina. In the mean time he is examining specimens of paralytic bees or other bees that seem to die for no apparent reason.

In some cases the Isle of Wight disease shows no outward symptoms, except that bees are dying in great numbers. Usually the affected bees will be found at the entrance, unable to fly, dragging their bodies on the ground as tho they were scarcely able to walk. In some specimens one or more wings will be out of joint. There may or may not be a distension of the abdomen, and there may or may not be any discoloration. Usually there is associated with bee paralysis black and shiny bees with distended abdomens; but even bee paralysis does not, in its early stages, show such bees. About the first symptom is a few trembling bees. They seem to be itching all over, and scratching their bodies as if distressed. Other healthy bees keep pulling at them as if to get them away from the entrance. As the disease develops, some bees will become black and shiny. The symptoms thus given seem to tally very closely with the Isle of Wight disease, except that with this disease the bees will be dying in large numbers, and congregated in bunches at the entrance of the hives, or even in the hive itself.

If we have Isle of Wight disease in America, the sooner we know it the better. We do not expect anything very serious, however, even if we do find it here, as the conditions in most places in this country are unfavorable for its development. It needs cool, moist, chilly rainy weather; and that is the reason why so much bee paralysis (which is like the Isle of Wight disease) showed itself in so many places last season in this country, and particularly around Portland, Oregon, where conditions are much the same as they are in Great Britain. There are so many symptoms in the Isle of Wight disease and bee paralysis that are identical that it is hard to escape

the conclusion that they are one and the same thing, differing only because modified by the season and environment.

Are Bees a Source of Infection in the Transmission of Blight on Fruit-trees?

In this issue, on page 605, appears an article by Prof. Gossard, in reply to our editorial on page 384, May 15, wherein we held that the professor had drawn some wrong conclusions, and incriminated the bee in a way that hardly seemed warranted from the facts in hand.

In order that the reader may better understand this discussion, perhaps it would be well to make a statement concerning blight as we find it on pear, quince, and apple-trees, and variously called pear-blight and twig-blight. The latter rarely goes beyond the current year's growth on apple-trees, and disappears the next year because it does not live over as it does on the diseased wood of the pear and quince, or at least that is the generally accepted opinion. Blight, therefore, is not to be feared to any extent on apple-trees, but it may be the ruination of whole pear-orchards. The only remedy is thoro pruning and cutting off the diseased portions. Very little attention need be paid to the twig-blight on apple-trees except to prevent this general source of infection to pear or quince trees.

Referring to the article of Prof. Gossard in this issue, we are very glad to give this space, not only because he stands high among our entomologists, but because we believe him to be perfectly fair. It is evident that we misunderstood his viewpoint, because he says if he had to make a choice between the extermination of the bees and the sacrifice of the two species of fruit (apples and pears) he would render his decision in favor of the bees, and then make shift to other fruit, of which there is plenty in the world. This shows that he is a very warm friend of the bees.

Scientists are not all agreed as to how blight is disseminated. At one time it was thought that bees were the main distributors of it, because if they visit the blossoms of fruit-trees containing the bacteria they could carry it to healthy blossoms. While this is true in part later investigation seems to show that biting and sucking insects pierce the tissue of the twigs that are diseased and do carry the infection when they bite into healthy trees. It has been determined that in the early spring months blighted limbs which had been allowed to remain over winter exude a watery

substance containing these bacteria. The inference has been that the bees would take up these juices, carry them to the hive, and then again to the field. Any one who knows anything about bees knows that they would have no occasion whatever to visit trees *unless the trees were in bloom*; and the very fact that young pear-tree orchards (which we have seen in California, and *which never bloomed*), were badly blighted, would indicate that bees, at least, were *not* the carriers of the infection. Indeed, the strong probabilities are that the bark biting and sucking insects are the main cause.

Prof. Gossard says in this issue that both fruit-growers and beekeepers alike agree that the blossom-blight does not appear to a great extent until some time after the blooming season has opened. He seems to have the impression that they might carry it, after the trees are out of bloom. Any practical beekeeper could inform him that bees do not visit trees or plants unless when the trees are in bloom, such bloom having either pollen or nectar to offer. Unless the blossoms are badly blighted in the first place, which they will not be in the early spring, as we understand it, they would not be likely to carry any blight-germs; and even if they do carry them to the hive, they could not live long enough to do any harm.

If we understand the theory of blight transmission, where and how it affects the trees, it would seem, in view of the evidence in hand, such evidence as is furnished here by Prof. Gossard and others that our bees rarely carry any blight-germs. It is conceivable, however, that the birds might come in contact with the watery substances containing the bacteria that caused blight and carry it from tree to tree. Ants and other insects that crawl over the tree and over portions that are diseased could very easily carry it to trees that are healthy. Bark biting or sucking insects could likewise do it, and do a large part of it if the testimony of careful men is correct.

To summarize, bees do not visit trees except when the trees are in bloom. They would have no occasion for crawling over the bark of infected trees, *and never do* like ants and other insects; neither could they nor would they bite into the bark, and never do they have occasion to suck the juices from the bark. The very strong testimony offered by Prof. Gossard in favor of the bees would condone for all the mischief that might be laid to their door.

We are not denying that bees may transmit blight from diseased to healthy blossoms; but as the bloom is rarely infected we may infer that bees seldom carry blight.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



MENTION is made, p. 416, of full combs, made the year before, and the bees put nothing in them that year. Isn't there some mistake about that? Do bees ever build comb in advance of immediate need?

INSTRUCTION is given, p. 490, to *shake* all bees in front of the new hive, and afterward to use the queen-cells on the shaken combs. Beginners should be informed that brushing is meant instead of shaking. Shaking might ruin the cells.

ALLEN LATHAM, p. 480, accounts for the greater immunity of Italians to European foul brood by saying that blacks suck out the juices of the dead larvæ, and Italians don't. That's entirely new to me. I wonder if others have observed the same thing. [This was also new to us. We shall be pleased to get reports.—ED.]

IN the Gravenhorst skep, movable frames can be put, p. 481. The novice may understand that to mean that it is a skep rather than a hive, and that frames are not always used in it, altho they *can* be. Gravenhorst was one of Germany's greatest beekeepers, and his hive, altho having walls of straw, is just as much a hive as the Langstroth, and no more used without frames than the Langstroth. [The Gravenhorst hive is in reality the Long Idea hive, with this difference, that it must be turned upside down to manipulate, and that the outer shell is made of straw in place of wood.—ED.]

How often it is that a thing that looks all right to us turns out to be all wrong when submitted to the bees! There's that idea of feeding *very slowly* when getting queen-cells built, p. 466. I should have said, "If honey is not yielding, the more you feed the better." Then I'd have lost my cells and wondered why! [There are two reasons why slow feeding is better than rapid. If the food comes too fast, it excites the bees, causing them to rush outdoors, expending energy and wing-gear that is utterly useless. The second reason is, fast feeding very soon results in a stoppage of the *incoming supply*. The bees may have ever so much honey or syrup in the hive; but unless there is something *coming* in all the time, cell-building is quite likely to be stopped and cells destroyed.]

Cell-building will go on when the supply comes in rapidly; but in a short time the brood-nest will become congested, and the

queen will have no room for egg-laying. There is every reason for slow feeding rather than rapid, either for queen-rearing or raising bees.—ED.]

P. C. CHADWICK says, p. 473, "I have learned better than to try to compel bees to put up nice comb honey when the flow is not sufficient." I'm beginning to think that a poor colony is much the same as a poor flow. At any rate, this year I'm picking out the colonies that make poorest work in sections, taking off their sections, and giving them extracting-combs. [You are right; and if so, does this not argue that it is an advantage to produce both comb and extracted honey in the same yard, and very often on the same colony? Besides, there is the factor of the season, the factor of the colony, and the factor of the individual or owner? The latter, if he is a beginner, will succeed better with extracted than with comb honey. We therefore advocate the production of both extracted and comb honey in the same yard. But this year we advise the large producer to run mainly for extracted, as there will be enough comb honey produced to take care of all market demands this year, and then some.—ED.]

PARDON a mild plea for correct English. If "diarrhea" be the correct word, it ought not to give way to an incorrect word that is smoother, altho to me "diarrhea" sounds much smoother than "dysentery." The claim that the latter has become so engrafted into our literature as to make change seem impossible, p. 469, is only a seeming. I've known those into whose language "hadn't ought" was quite thoroly engrafted, yet in time they learned to say "ought not." ["Hadn't ought," of course, cannot be tolerated in any dignified English. Such a phrase is not engrafted in the pages of our regular magazines and papers, altho it is a part of our every-day spoken language. Dysentery is a part of our bee literature.]

We have had some experience in trying to change our nomenclature, and we find it an uphill business. It has taken us years to change "nameless bee disease" to "bee paralysis." We attempted to change "fertile worker" to "laying worker," as the former term was thought to be less accurate, but we never really succeeded. If you were making books and magazines, you would not attempt to make a change from "dysentery" to "diarrhea." Does not the former term indicate the meaning of the word closely enough? Then why attempt what is difficult at best?—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



Shall we try to eradicate sacbrood as well as foul brood from our yards of bees by the destruction of combs and brood?

In Japan they call white clover "Jesus grass" because it was introduced by an American missionary.

If a wire imbedder is kept hot over an oil-stove it works much better, especially if the foundation is cold.

Our friend Holtermann reminds us, page 310, April 15, that when looking for queens we should keep our minds right on what we are doing, even if we have to keep saying mentally all the time "queen, queen, queen," as tho we were trying to call her out from her hidingplace.

G. C. Greiner, page 312, April 15, tells us how to get bait sections that, when filled, will be in no way inferior to sections filled by the most approved method. This is the formula: Let them be drawn and filled, and taken from the hive, extracted, and cleaned up by the bees as soon as possible, and then stored in air and dust proof compartments until wanted. Good!

I wonder if there is any business other than beekeeping so stimulating to the mind and that leads one to be so interested in everything about us—plants, flowers, other insects, birds, animals, and even soils and climates! No need to go to the movies, nor to read stories to find something interesting. The book of nature is a very interesting book.

Louis H. Scholl says, page 390, May 15, that this spring has afforded a most convincing experience in favor of a divisible brood-chamber. Here, he says, was the same old condition of nearly twenty years ago, and for which reason he adopted a divisible hive. The question arises in my mind whether it will pay to make changes in our hives to suit conditions that do not come oftener than once in twenty years.

"Favorable spring for bees," says the editor, page 382, May 15. "While the spring is a little late, and fruit bloom has been delayed, the conditions were never better for bees." Well, I should say so! Our bees are swarming two weeks ahead of any-

thing I have ever before known. Dandelions must get a good deal of credit for it, for they are getting to be a great help during May, stimulating brood-rearing and giving bees a chance to fill unoccupied combs with honey.

We are under obligation to Arlie Pritchard, page 298, April 15, for his experiments on white rats and toads. We know that it sometimes happens that what will poison one thing will be harmless to another. Sheep will eat with impunity aconite—a deadly poison to man. We may not, however, conclude from these experiments that all creatures that eat live bees are immune to their stings. A lady of my acquaintance was bothered with skunks feasting on her bees. She set a trap, and caught the offender. She said she thought she would give Mr. Skunk all the bees it wanted and left it in the trap in front of the hive. But when the sun was up, and the bees had a fair show, it did not take them long to kill the skunk.

LET SWEET CLOVER KILL OUT THE WEEDS.

My good friend Byer, page 349, May 1, objects to sweet clover because it sometimes comes up in meadows where it has once been sown. The same objection might be raised against alfalfa, as I see more or less of that growing in meadows where farmers have tried to raise it, and the plants that persist in remaining in the soil appear as hard and worthless as dried-up stalks of sweet clover when left till time timothy is fit to cut. Formerly the sweet-clover seed sown was one-half hard seed that would not germinate the first year. Now it is easy to buy scarified seed that will practically all grow the first season and prevent the later growths. There is yet much to be learned about the cultivation of this plant, and its greatest value may be in pastures where it will not harm the crop of timothy, but will produce two or three times what the pastures are now producing. Mr. Byer speaks on the same page of hundreds of acres of limestone formation about Brockville, used mostly for pasturage, that paintbrush has run over and ruined. Suppose this were sown to sweet clover. It would doubtless kill the paintbrush as that plant has killed other plants, and furnish more feed than they ever produced before, besides enriching the land so it will get better from year to year, rather than poorer as in the past.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The pictures of the bees on the bicycle, page 493, June 1, brought to my mind a story I once heard of a cow-boy who was riding a very wild pony. It chanced that the pony in some of his antics got a rear foot in the stirrup of the saddle, whereupon the boy said, "Say, if you are going to get on I will get off."

Mr. Scholl says, page 471, June 15, that by his method "it is possible to take off more than a thousand pounds of honey in half an hour." Then he adds, "The writer holds an actual record of 1140 pounds of honey removed in exactly 28 minutes." I figure that to be just a fraction under 41 pounds per minute. No, thanks; I do not care to have any one slamming around among my pets like that.

Dr. Miller says, page 469, June 1, "My observation has shown that bees decidedly prefer old black combs for either eggs or honey." I am not as ready to proclaim my observation as to honey-storing as I am to egg-laying; but I do know that Dr. Miller is entirely right about the egg-laying. I have seen queens skip a new comb to get to an old black one to deposit her eggs, not merely once but a number of times.

Dr. Miller says, page 469, June 1, "An easier way is to let the bees clean the cappings." Well, it may not seem good manners for me to be scolding my elders; but, doctor, you should be a bit explanatory when making such assertions. One of the worst things we have to contend with out in this neck of the woods, where one range overlaps the other, is that just such work is practiced, even where disease is plentiful, and the results may be imagined in many instances where the bees from several apiaries may be helping to clean up the caps. The worst feature, however, is the tendency to encourage robbing, so I am wondering whether you set your cappings out in a kind of free-for-all way, or have a perfectly safe way.

In a recent conversation with Chas. W. Mixter, who is interested in bees in the Coachella Valley, I was informed that climatic conditions are a great factor with them, and that this season their crop would be short on that account. Mr. Mixter is in

the upper end of the Salton Basin, and Imperial in the lower end. Here almost the entire hope is in the irrigated alfalfa, and climatic conditions are all that could affect the crop, as the soil is irrigated the same from year to year. Mr. Mixter said, also, he thought much of their trouble this season was due to cold nights and not to very warm days. This seems to be the foundation for most of our climatic troubles—lack of heat at the critical time. It is undoubtedly a fact that we have more large honey yields when the springs are late than we do with extremely early seasons. Even when the weather is so cold and the spring so backward that we become impatient, hot weather usually comes with a good flow of nectar when the rains have been sufficient.

CLIMATIC CONDITIONS.

The older beekeepers are often sighting things in relation to honey crops that they believe are factors in the output. One of these situations is "climatic conditions." I have given this question some consideration, and have come to the conclusion that it is not always a mere myth. It is my opinion that we have been affected, to some extent, by such conditions this season. Vegetation on the foot-hills this season, until recently, has shown no ill effects of the lack of late rains, and all thru the blooming period of the sage there was no apparent lack of moisture in plant growth, yet the nectar was not in the plants in quantities heavy enough to cause a heavy honey-gathering. The button sage bloomed profusely, as did the white variety, yet no yield of consequence.

But what are the climatic conditions that so affect the honey yield? That is a hard question to answer. The variation in my scale-beam this season from day to day gave me a little insight to some of the so-called climatic conditions. During the white-sage bloom we had many cool foggy mornings, followed by moderately warm days. From one-half to three-fourths of a pound was all my scale colony could make in 24 hours; yet when we failed to have the fog, and the heat climbed up around 100 degrees for a day or two the scales would show from 1½ to 1¾ lbs. gain in the same time. This condition is typical of the white sage.

In the season of 1905 the white sage did not bloom much until July, by which time the temperature was going up around 110 degrees daily, it being an unusually warm spell, and such a crop of white sage has not been harvested since that time.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Until recently I have believed that hives could be made with halved corners, nailed both ways in such a manner that they would stand just as rough handling as dovetailed hives. This is not true, however. Thru the purchase of bees we have quite a number of them in a few of our apiaries, made by skilled workmen, that become loose in the corners and lose their shape. There are several ways of making these corners so that the walls may be nailed from both sides, but none of them equals the dovetailed corner. This is especially important with us, since we handle all our colonies and the honey crop in hive parts, instead of individual frames or combs, and haul them long distances the year round.

* * *

While there are various ways of fastening foundation sheets into shallow frames I like none so well as the melted-wax method used by ourselves, and described in detail some time ago. Our frames have plain, smooth, grooveless top-bars. These are laid successively on to our frame-rack for holding three frames, and the sheets of foundation are simply laid against the spacing-boards, close to the top-bar, and a spoonful of melted beeswax poured along this and the job is finished. There is no time lost in first working the edge of the sheet into a groove, which, by the way, becomes useless after being once filled with wax as well as weakening the top-bar. This plan is also much more rapidly done than by the methods employing the rolling or pressing to the top-bar about $\frac{3}{8}$ inch of the foundation sheet. The latter method is also a more expensive one on account of the costly foundation that is wasted in fastening the sheet. Then, too, it does not adhere quite so well as the melted-wax fastening; and in this case the same wax, scraped from the top-bar again and again, whenever the comb is removed, is used to fasten other sheets.

* * *

QUICKLY REMOVING THE SURPLUS HONEY.

An interesting article was that of J. A. Green, p. 351, May 1 — freeing supers of bees in out-apiaries by means of carbolized cloths laid over the supers to be freed of bees, in connection with some smoke.

I tried this some years ago, when mention of this method was occasionally made, but gave it up as impracticable, in our method of management at least. It may work better with others. First, it requires more time

in the proper preparation of the cloths themselves, and to remove the supers with them than with our method of hurriedly smoking out the bees, removing the supers, and shaking out the few remaining bees when the supers are carried to the wagon or truck. The second objection was the danger of the odor affecting the honey, which it did in several cases. While this may be overcome to some extent, perhaps by using more care and by the use of highly refined carbolized acid (as suggested by Mr. Green it is rather expensive just now), and with hired help, it is more of a problem to have things attended to with the same carefulness as when one does it himself.

TWO FORDS BETTER THAN ONE.

Yesterday we returned from a trip to five apiaries where we put on additional supers of full sheets of foundation for bulk comb honey. At the last yard we "picked up" a load of the finished product and brought it back with us to the honey-house. With the supers, frames, and honey there was about 1200 pounds of weight to the little Ford truckload. We left at about 10 A. M., and were back at 6 P. M., covering a distance of over fifty miles, and going into and thru pastures and over rough roads. Today I read the editorial on page 466, June 15, in which the editor gives his experience with one of these small cars. My experience in out-apiary work with the Ford warrants me to add "amen" to what is said there. My dreams have been about one of the somewhat larger trucks for the heavier hauling, in addition to the small runabout, and the delivery and larger bee-moving platform spring wagon and two horses; and until recently I thought that my equipment would not be complete without such a larger truck. After trying it, however, I changed my mind. It was impossible to make the fast time with the large truck that I desired, nor to haul as safely supers filled with foundation or tender comb honey. A load of 84 of our shallow ten-frame supers on the larger truck resulted in a good deal of torn or jolted-down foundation sheets, while there was no such trouble with my loads of 50 such supers on the Ford, and yet we made far faster time. Taking into consideration, therefore, the great difference in expense, first cost, and the cost of upkeep thereafter, I have decided upon another Ford to enable me to take somewhat lighter loads but in considerably quicker time. In fact, most of the running around of the beekeeper can be more economically done in this manner.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



Very timely, and pertinent to the statement on page 525, June 1, comes a letter from Mr. Roy M. Scammel, of Eau Gallie. Mr. Scammel was a very extensive bee-man at one time, having had 500 colonies that he owned and managed. Now he has about 70, but is building up to the former number as rapidly as he can. He says:

"Don't you think that good hives, carefully managed, means half the battle?"

"Good hives" for this climate means water-tight covers, in our opinion. Without that no hive is good nor even passable. So far we have found nothing equal to the metal covers, and are discarding all others for them. The second part of your query, "carefully managed," takes us out into manipulation, and we agree with you that manipulation is not only half but three-fourths of the battle, or even more, granted that one is in a good location for nectar, of course. Without that, no management or manipulation is any *worse* than another so far as profits are concerned!

"Do you sell your honey in bulk or in small packages?"

A limited amount I sell in one-pound glass jars, and five and ten pound tin pails, locally. Most of the crop is sold to dealers away, whom I know, to whom I ship in 60-lb. tin cans or barrels (seldom orange honey in anything but tin cans), and who take all I can produce of good quality. Poor grades I dispose of to bakers.

"Do you get any honey from the berry of the palmetto?"

In certain years, late in summer, when the berries are ripe, bees will gather the exuding juice from the bursting and over-ripe berries of the palmetto just as they will from the over-ripe and bursting apples, pears, and grapes in the North. This juice, even when stored in the combs, is not honey, nor can be. It will candy quickly, as you say; is black and strong, and fit only for feeding to stimulate breeding in times of dearth. I get none here, however, only on the East Coast, and then only in certain years, as, I understand, is the case with you also.

"Have you bees on the St. Johns River? I used to think that a good location."

None now—formerly a small apiary there. There are some good locations along that river, especially where one can get near enough to large orange-groves, as well as to the palmetto (saw and cabbage) that are

found more or less along the river banks and tributaries to it. It is better still if one can get a place where willow, maple, and elm are among the hard woods of the hammocks on the banks. The three latter furnish spring stimulation, and even surplus, according to some reports, tho I am inclined to believe such places rare. Mr. Clute, now of Sanford, seems to like the St. Johns for outyards—at least as navigation on the water is easier than on land.

"Do you get honey from heartease and Spanish needle?"

Not here; on East Coast, in certain seasons; but not more than is needed to carry bees over to spring, after last extracting in the summer, which, with us there, is after mangrove. I do not know of any heartease even there, but reports have come to me of considerable of it along the rivers inland, south of here.

"Do you know whether the yellow jessamine yields poisonous honey?"

We have "oodles" of the yellow jessamine (*Gelsemium sempervirens*), and bees are humming about it and burying themselves in the yellow blossoms all spring, from February to March, unless orange happens to be yielding well, then they seem to prefer orange-blossoms. We have never noticed any peculiar effects, one way or the other, from the activity of the bees about these blossoms, nor have we ever been able to notice that it had any effect on the honey supply, as it never makes a showing in supers. Nor do the bees seem to suffer from it at all (see A B C and X Y Z, p. 428, 1913). We believe it is useful among other plants for spring stimulation. By the way, I should like to note here that the spelling in the A B C referred to above is jasmine, and probably an oversight on the part of the contributor. The so-called "yellow jessamine" should be spelled "jessamine," not "jasmine." The latter is quite a different plant—the *jasminum* belonging to the olive family, while the latter, the gelsemium, or false jessamine, is of the *Logania* family. The jasmine (Arabian *jasmine*, for example) has white flowers, and not yellow, like the yellow jessamine referred to above. See Baerecke, Ferns and Flowering Plants, Atlantic section, middle Florida; News Pub. Co., De Land, Fla., p. 111.

"Does the water hyacinth yield honey?"

Never, in all my experience, have I seen a bee on the water hyacinth of the rivers (*Piaropus crassipes*). I don't believe it has a bit of nectar.

To be continued

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



CHILLED BEES, ETC.

"On page 416, May 15, Henry S. Bohon says he found a colony of bees starved out with a temperature of 10 below freezing, with the bees apparently dead. He brought the colony to the house where the warmth and a sprinkling of warm syrup brought all the bees to life. I never was able to bring a bee back to life after it had been frozen. It seems to me that 10 below freezing should freeze bees."

It will be noted that Mr. B. lives in Virginia, and undoubtedly on a spring morning the temperature could be 10 below freezing, and the bees inside the hive on the bottom-board not be frozen, as the hive and the warmth from the ground below would keep them from the frost of an early morning. Several times in my 40 years' experience I have brought individual bees and whole colonies back to life under similar circumstances. My first experience along this line was about 55 years ago, when as a boy in roaming the woods in the maple-sugar season I heard bees in flight. Looking up I located a colony of bees on their cleansing flight from a tree. The sun was shining bright, but the air was cool, so that some of the bees fell on the snow in the shade and became chilled. That night it rained all night, but kept mild for two or three days more. Father rather doubted my finding a bee-tree, and three days later I passed that place again. Having a little box in my pocket I picked up about a dozen of the "bedraggled dead bees," put them in the box, and the box in my inside vest pocket. Arriving home I took the box out to prove to father that I had found a bee-tree. On pulling out the box a buzzing was heard inside, and on opening it before a window every bee flew to the light.

In later years I tried chilling bees by shaking them on the snow near dark with a temperature of 35 to 40, then, gathering them up, putting them in the cellar where a temperature of 40 degrees was maintained, dreaming that whole colonies might be kept in a "hibernating state" by some such scheme; but from ten days to two weeks was all I could get, even when the bees had been made to fill themselves with honey.

On page 425, June 1, I see that Editor Root thinks that "a sudden chilling kills them." I do not believe that the suddenness has anything to do with the matter. The editor mentions "a zero atmosphere."

One of his slowly chilled bees would succumb in such an atmosphere just as quickly, for on the freezing of the juices of the bee that bee dies just as surely as if "crushed under the foot of man." It is in the freezing that the life goes out.

TIME FOR THE EMERGING OF QUEENS.

"Dr. Miller and H. H. Root, p. 427, June 1, are having a scrap over the time it takes for the emerging of the perfected queen from the time the egg is placed in a queen-cell by the mother queen. Which is right?"

Perhaps Dr. Miller will accuse me also of going by traditions; but it was in the year 1869 that I read from Moses Quinby that the queen is in the egg form 3 days, in the larval form 6 days, and in the pupa form 7 days, or 16 days from the egg to the perfect queen. He said that cool weather, to a certain extent, prolongs the time, and hot weather shortens it a little; but for all practical purposes, 16 days is quite dependable. Now, when the bees are becoming somewhat sluggish thru a desire to settle down for their winter nap I have known queens to take 18 and 19 days in perfecting. Then in the excitement and bustle of the swarming season, with the mercury soaring up in the nineties the most of the time, I have had queens emerge in only 15 days and two or three hours; but I have never known of a single queen emerging in as short a time as 15 days. In most of the short-time queens they have been proven to be such as are held in their cells by the bees after they are mature, when the figuring is done with swarming colonies. Bear in mind that a queen at maturity is as white and weak as any worker when it begins to gnaw the capping of its cell, and a newly matured queen cannot fly any more than can a newly matured worker. Such white weak queens do not push the covers off their cells and fly off while you are cutting the queen-cells off the combs, as we are told hatching queens often do.

HONEY IN CELLS CONTAINING EGGS.

Dr. Miller, on this same page, says that Arthur C. Miller has "a new one" on him in saying that "bees sometimes put honey in a cell that contains an egg." I do not now have A. C. M.'s article where I can turn to it, but I have known bees having laying workers that put both eggs and honey in embryo queen-cells, and to a certain extent in drone-cells, but not in worker-cells.

GENERAL CORRESPONDENCE

THE COST OF HONEY PRODUCTION

BY ARTHUR C. MILLER

Prepared from an address delivered at Syracuse, Dec. 7, 1915, before the New York Association of Beekeepers' Societies.

Do you remember when the colt shied at the paper and left you sitting in the dust in the middle of the road? Some jolt and some surprise. Well, that is just how I've felt every time I've tried to get any of the "boys" to tell us what it costs to produce a pound of honey. They have shied at the question even worse than the colt did at the paper. I've tried them several times, and now I'll try again; and perhaps this time I can get them to walk right up and investigate. As an aside, let me tell you that some of the "boys" I've tried were frisking around threescore and ten or more—full time they were steady enough not to side step at such an innocent question.

Why do I want to know what it costs, do you ask? What difference will it make? Even if you know you cannot get any more for your crop, can you? Fair question; and the answers are that I want to know if I am doing a profitable or a losing business. If the former, is it a fair profit—worth continuing? and if the latter, can I make it profitable or shall I abandon the business altogether? I also want to know what each step in the business costs me that I may know where I can better matters or stop some leak. That I get money enough out of the business to support me and have a little left over is not to the point at all. The same capital and energy put in some other line might pay far better; or even my time alone, perhaps, could yield me a greater income. Enjoyment and health are not under consideration now—just cold dollars and cents.

How shall we get at the cost? Just as they do in any business—find the basis of it and build on that. The basis is "capital and labor." First, we must determine the amount of capital we have invested; then we must determine the value of the labor used in working that capital. That our figures may be the more readily applicable to apiaries of different sizes, or to a plant embracing many apiaries, it is essential that we establish a unit of value; and that unit is the capital *per colony*, just as the mill men figure at so much *per spindle*. In the figures which follow, the basis used is of one hundred colonies. A larger plant would lower some items but increase others, while in a smaller plant the reverse would be true.

After consideration the hundred-colony basis has been deemed a proper one.

The capital per colony on this basis is approximately \$10, divided as follows:

Hives, supers, honey-boards, escapes, frames, and brood foundation, \$4.32; making up, painting, tools, extractor, tank, etc., 68 cts. Total, \$5.00. Cash for working capital, \$5.00.

The first items may vary a little under different local conditions; but from figures obtained from several sources I believe them to be reasonably accurate. The item of "cash for working capital" should equal the investment in fixtures and appliances. This is something that is all too often overlooked or underestimated, not alone in honey production, but in most lines of business. More failures come from having too little capital for the business than from any other one cause.

This cash capital must supply sections, crates, super foundation, food, cans, bottles, labor, freight, and take care of all the "overhead" charges. All these things must be paid for; and when the crop is sold the money expended for such items must be returned to the business. If you will consider these things a moment, I think you will see the necessity of the classification.

With the capital determined we must next ascertain the cost of using it, the "expenses" of running the business. The following items are to be recognized:

Interest, 6 per cent; depreciation and upkeep, 10 per cent; insurance and taxes, 1½ per cent; labor, 10 per cent.

This makes a total of 27½ per cent which must be earned each year before the business can pay the owner any profit. Let me explain these items.

Interest: It should be charged; because if the same capital were invested in a mortgage, for instance, it would yield the owner interest without labor on his part.

Depreciation and upkeep: The plant must be "kept up," which means both repairs and replacements; obsolete appliances must be superseded by new and better ones, so this item must enter into our determination of costs. Ten per cent is a fair rate at which to figure this. Some lines of business figure much more than this, while few figure much less.

Insurance and taxes: Few beekeepers insure their plant, and in many states they are not taxed; but these items should be estimated, for insurance is good business and taxes may be imposed.

Labor: The determination of this item was not easy. Labor at ten per cent means one dollar per colony per year. I have been told both that it was too much and too little. It does not mean a dollar just to handle a colony of bees for one season; but it does mean the amount you must charge against each colony for all the labor connected with handling it, the crop secured from it, and the labor of preparing that crop for sale. That does not have anything to do with the cost of selling it, which is another part altogether. We are now considering cost of production only; and getting it into condition for sale is part of that cost. This labor item has been figured for a skilled man at \$.50 per day. The beekeeper should charge for his own labor as much as he could earn in any other line at which he is skilled. If he can earn \$10 or \$20 a day in some other business, then he must charge his time at the same rate if he goes into the honey business. Naturally the man whose time is so valuable is going to conduct the bee business on a scale sufficiently large to yield him such a return for his time. Some critics have questioned whether a beekeeper's time is worth \$.50 a day. If his time is not worth that of any of the skilled trades he had better quit the honey business and hire out as a day laborer. But other critics agree with me that \$.50 is a fair value to use in estimating the cost of honey production.

When it comes to an estimate of one dollar to handle a colony of bees, the crop therefrom, and the labor of upkeep, I can only say that the figure is the result of some careful records and figuring. If you differ, just go over your estimates and figures again before you refuse mine. At the worst, I believe you will be likely to place the cost higher rather than lower.

Accepting the percentages given, let us see what it costs to produce a pound of honey; but before I give you figures let me disturb your equilibrium by telling you that counting "sections" as equal to "pounds" of extracted, the cost of producing a crop of comb honey differs very little from producing one of extracted honey. "If this is treason, make the most of it!"

At an operative per-colony cost of 27½ per cent on a capital of \$10 we have an expenditure of \$2.75. The average per-colony yield from statistics in several states and Canada is given as about 50 pounds.

That figures as 5½ cts. per pound. If this estimate is wrong I believe it errs on the side of being too low rather than too high. Some may say they can get along with less capital, but they must have a care that it does not force cost up in some other place. Others may say that an increase in the average per-colony production to, say, 100 pounds would mean a cost of 2¾ cts., but it would not. While it would cost less to produce 100 pounds per colony than 50 pounds, it would not cost half as much. Don't get fooled there. The figures given are based on average production. If your average for good years and bad is above this, *your* per-pound cost will be lower, that is all. First be sure what your average for *a series of years* really is.

It will be noticed that I have not estimated the value of the bees. That was intentional. While the first few colonies are usually purchased, the rest are "grown," the product of "labor." The apiary may be decimated by disease, cold, or starvation, and we restock it by dividing or by swarms—in other words, by "labor." You say an apiary of well-stocked hives is worth more than the same hives without the bees. True, if you are closing out the business; and even so the presence of the bees merely enables you to get more nearly the real value of your hives and fixtures. In most cases the beekeeper raises his own bees, and then surely they cost only labor; and if he is buying an apiary he seldom pays more than the value of the hives and equipment, if as much, and that little more is very properly chargeable to labor. For the purposes of figuring the costs of honey production I have deemed this classification of the bees the proper one.

There is another very necessary explanation in connection with these remarks on cost of production, which is that the labor charge given is only for the time actually used in the work connected with one hundred colonies; but it gives the per-colony cost, which we must know. If a person is making honey production his exclusive business he must charge his whole year's time against the cost unless he is engaged in some other gainful occupation during the "off" season of the year. While the big operator has to charge a year's time to cost of production, it is distributed over so many colonies that the per-colony cost is not materially increased, and he has really less *unproductive* time during the active season to charge to cost.

The foregoing is submitted for your consideration and criticism. I do not ask you to agree with me unless you are satisfied

that I am right. I do believe that the basis of estimate you will find is right, tho you may differ as to the amount of investment

and cost of operation. If it is your pleasure to debate these items, stick to the "per-colony" unit in your estimates.

Providence, R. I.

EASY QUEEN-REARING

BY ALLEN LATHAM

Not a few beekeepers fail to renew the queens in their colonies with sufficient frequency because of the difficulty of getting the queens. They do not feel like buying so many queens, and they do not find it an easy task to rear their own queens.

The various methods in vogue will work in the hands of their originators. When some one else tries a well-advised scheme he runs upon snags. In the end the queens he raises cost as much as or more than queens bought outright. I have probably tried every plan of queen-rearing that has ever come to my notice—some with fair success, others with rank failure. Either I got too small a percentage of queens or else the queens were poor.

After years of trial and effort I stumbled upon a method which is giving me more uniform success than any other. It is so simple that it would seem as if any one could succeed with it, and so economical that even professional queen-rearers will probably find it worthy a trial. The objection to be found with the majority of methods of queen-rearing is that they give too few queens for the bees employed.

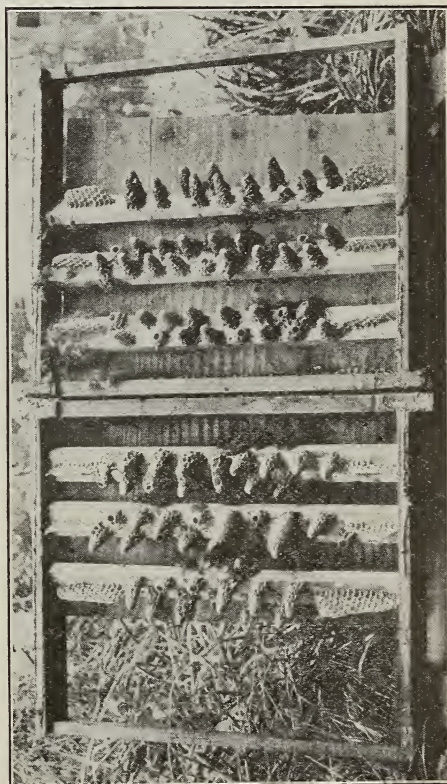
It is generally taught that a colony will not rear over a score of good queens at a time. This means the employment of a full colony of bees for some ten days and only a dozen or score of queens to pay for the expense. If that same colony can be made to turn out 50 to 100 good queens in the same time, it is easy to see that the expense is tremendously lessened. Many a year I have neglected to rear as many queens as I desired, simply because it meant the employment of so many colonies to do the work. Now one colony will give me all the queens I want in one batch.

The photograph shows that the cells tho numerous are good ones, and never by any methods that I have employed have more uniformly good queens been obtained.

This method in Connecticut can be used any time from April to September, but it gives the very best success during the swarming season. The steps to be followed are these:

1. Prepare cell cups to the number of queens desired up to 100. Fasten these closely together on slats, crowding them so

that 18 or 20 come within a length of 11 inches. This can be done by zigzagging them on a strip one inch wide. Two or even three such strips can be fastened in one frame. Two or even three frames can be prepared.



Not peanuts but queen-cells—illustrating Allen Latham's easy method of rearing queens.

2. Put small pieces of foundation at the ends of the strips so that the wax bees will have a chance to use up surplus wax, otherwise many cells will be engulfed in comb. Also put in a lower strip of wood with only foundation on it. These strips should be placed about $1\frac{3}{4}$ inches apart—enough, any way, to allow the cells to clear the strip below them when they are finished.

3. Select some strong colony in the afternoon—a colony which has a host of nurse

bees. Find the queen. Remove her and all the brood. If there are no combs well stocked with pollen and honey, then find such in other colonies. If there are enough bees leave a few on the combs of brood and set those combs with queen and bees in a closed hive near by. Now place one comb of pollen and honey in the selected hive, then place in all the prepared frames of cells, and then the other comb of honey and pollen. If it seems desirable, pour some water into the vacant cells of one comb. Put the cover on the hive and leave it till the next day.

4. The following day pick out the comb from which the larvæ are to be taken. Best results follow if this selection has been forestalled by putting in a sheet of foundation for the breeding queen to lay in, feeding the breeding colony so that there will be a fine lot of larvæ of the right age. Take the ready comb into a warm room which has a moist atmosphere, and where there are no drafts.

5. The royal jelly, which must be ready (and this can be obtained by removing the queen from some colony four days before, if one has no other source of supply), is now diluted with distilled water or else saliva. If saliva is used it is well to rinse the mouth out well so that all foreign substances likely to injure the larvæ will be removed. Dilute to the consistency of heavy cream. By dipping a blunt stick into the jelly, place a small drop into each cell. By this time the distracted colony has worked more or less over every cell cup, and it is ready for a larva.

6. The transferring of larvæ takes time, and there is danger of the royal jelly glazing over and the larvæ being seriously injured. One must work with celerity, and much speed will be gained if the most promising portion of the comb containing the young larvæ is cut out, and shaved down so that the picking up of an individual larva is made very easy. It is well, in case two frames are to be stocked, to do one and place that in the colony before the other is done.

7. Put the stocked cells into the colony. Feed each night for four days from one pint to one quart of much-diluted honey, unless there is a honey-flow. Do not feed after the fourth day, for by that time every cell is about to be capped, and feeding is useless. There is one exception to this. If there is a great dearth of honey on, it is well to feed enough to keep the bees fat and contented.

8. On the tenth or the eleventh day, according to the age of larvæ you select, all

cells must be removed and each given to a nucleus, or cared for; for when those cells are ripe the work may all be lost by the emerging of queens and dueling.

9. Most of the bees of the colony can be used to build nuclei; but if that is not necessary, then replace the frames of brood, young bees, and queen which now occupy the hive which, ten days or so before, was set near by. The colony will go on and show practically no ill effects from its task of rearing 100 queens.

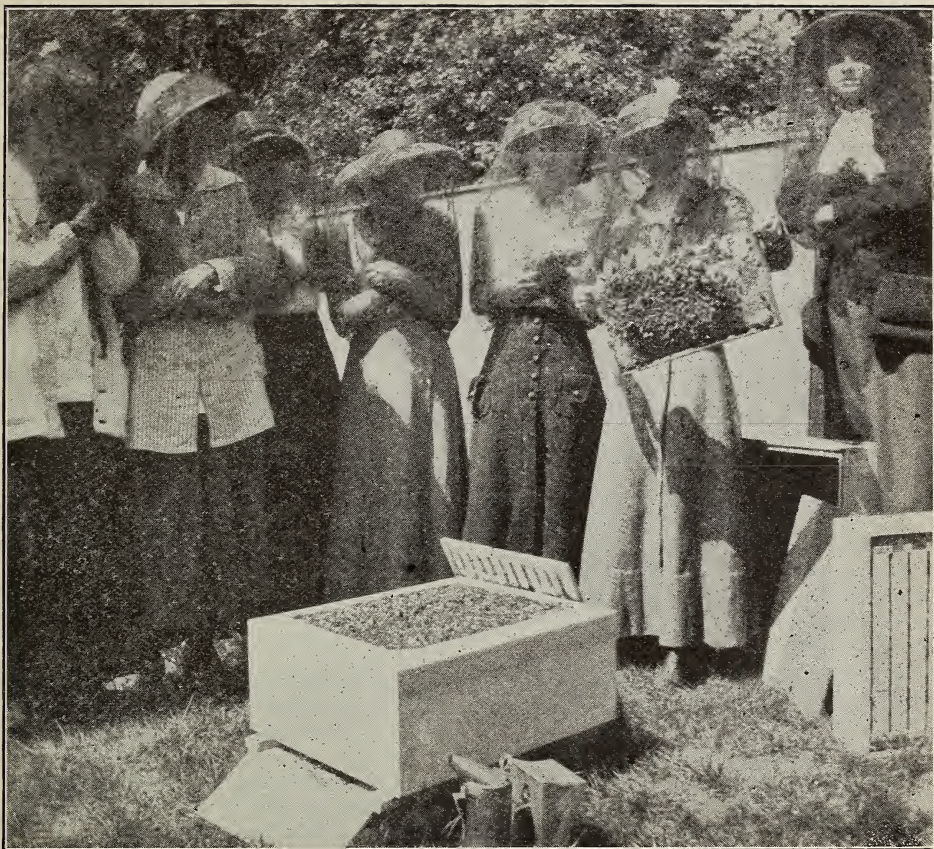
From its lengthy description one might be staggered by this plan of rearing queens; but when once tried he will find that the method involves as little labor as any method in use, measured on the basis of the number of queens obtained. Indeed, it involves far less labor than most of the methods. There is no swarm-box nuisance attached to it; there is no need to shut bees up to get them distressed; there is no set time to be followed in regard to the preparation of the colony and the grafting—anywhere from six to twenty-four hours giving good results.

If one needs from fifty to one hundred queens he will find it very gratifying to get those queens at the expense of but one colony for ten days. And if he has no nuclei to care for the cells and emerging virgins, he can put them immediately into the colonies which are to be requeened. It is only necessary to remove the old queens three days before the cells are to mature. If this is done at a well-selected time, say just after the honey-flow, little if any loss can follow, because the colonies are without laying queens for some ten days or a fortnight. Also, there is but a small percentage of loss in wedding-flights when virgins fly from full colonies.

I have never tried to see how many good queens can be reared by this method. I have said from fifty to one hundred; but I really believe that a powerful colony could easily give two hundred or even more. It would be no task at all for a colony to feed 8000 worker larvæ for four or five days, and it would not be unfair to assume that the feeding of 300 queens would be equally easy. In my opinion the number is limited rather by the beekeeper's ability to get the cells grafted with sufficient rapidity so that they may be all equally cared for.

One statement more is desirable before closing. It will be observed that the arrangement of frames and cell cups is such that they lie bunched within the midst of a great cluster of bees. Much of the secret of success is in concentration.

Norwichtown, Ct.



One of the classes in zoology at the Germantown High School. "An intimate knowledge has been gained of one of the most remarkable phases of insect life."

BEES FOR HIGH-SCHOOL STUDENTS

BY ADELENE H. JACOBS

That beekeeping can be incorporated in a course in elementary zoology has been demonstrated at the Germantown High School for girls in Philadelphia. It was a notable day in September, 1915, when a colony of Italian bees was housed in a double-walled hive on the lawn outside the zoological laboratory. Remarkably fearless, the students gathered around the hive and received their first instructions in the life-history and activities of the bee.

Instead of reading about *Apis mellifica* and looking at museum specimens of queens, drones, and workers, our pupils in groups of ten, protected by veils of their own making, began their study of insects at the buzzing hive. Here we watched the foragers returning with their balls of golden pollen; learned to distinguish the kinds of bees on a crowded brood-frame; became fa-

miliar with the cells used for storing pollen and honey, or in which were developing the whitish wormlike drones and workers, and observed the attendants cleaning a bee that had been spattered with honey. These and many other things we learned at first hand with keen interest and enthusiasm. In addition we found that biological problems of an abstract nature became more real and significant. Adaptation of structure to function; relationship between environment and individual development; instinct vs. intelligence; division of labor and communal life—all these topics were vitalized, and had practical meaning when interpreted thru our own colony of bees.

The pupils showed a sustained interest in the bees, even during the winter. They reported to us, now and again, that the bees were flying "at recess time" when an occa-

sional mild sunny day came. With the return of spring, our demonstrations at the open hive were resumed. Not only were those who had watched the bees in the fall eager to see the hive opened again, but new classes which had entered the school in February were curious about the big white box. With more confidence the teachers who had been studying bee-literature zealously during the winter months handled the frames before the ever interested audience.

It was one of the students who came into the laboratory on May 25 with the words that sent such a thrill thru us all: "The bees have swarmed! They're up in an apple-tree!" Forty feet up on the branch of an apple-tree was a wonderful compact conical cluster of thousands of bees which we had known heretofore only in books. A real problem confronted us. Never did a teacher have a more delighted and attentive class, remaining long after the dismissal bell to watch the hiving of the swarm. A new hive had been provided weeks before for just such an occurrence. The Germantown school was now the proud possessor of two colonies of bees.

In the fall of 1915, when school was resumed, the students were attracted to one of the hives, at that time increased in height by two supers. To give a practical turn to our study of bees, we sold the sections to the students. And very attractive they looked, too, in printed cartons on which we stamped the school name. Incomplete sections were cut into small cubes placed on crackers. Two students played shopkeeper, and sold these "tastes" for a few cents to the eager purchasers. These funds are to place the colonies on a self-supporting ba-

sis, so that we need not apply to the school board to defray expenses for the equipment of the past season and the coming one. Last autumn we had bought sugar for feeding, so that the bees would surely have sufficient winter stores. We also bought a new queen to replace the one reared in the old colony, and which had mated with a black drone. The offspring, hybrids, were unpleasant to handle in class demonstrations.

In our year and a half acquaintanceship with the bees there came the new experience of moving the hives. The old school was vacated on the first of November, when we moved into a fine new building. One day in December the janitors carried the two hives to their new stand. They constructed a wooden carrier or support on which they bore each hive a distance of two city blocks, being most careful to avoid jolting the hives.

When we tell of incorporating the rudiments of beekeeping with our lessons in zoology we are usually asked, "Do not the students get stung?"

The question is easily and definitely answered. Now and then a girl is stung, but there have not been any serious swellings among the students. They rather glory in their intense but brief suffering, for the spirit of martyrdom assumes strange forms in this age. In view of the fact that in the spring and fall over a hundred girls receive instruction at the open hive, the number stung is a very small percentage.

In any event, the lessons in zoology have been vivified by contact with a living subject, and an intimate knowledge has been gained of one of the most remarkable phases of insect life.

Philadelphía, Pa.

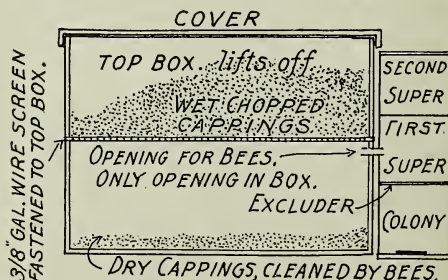
HOW TO GET ALL THE HONEY FROM CAPPINGS

BY H. H. M'INTYRE

Any contrivance that will get all the honey from cappings, and have it stored and sealed in combs without danger of transmitting possible foul brood to more than one colony in the yard, will save beekeepers much disagreeable work, and thousands of dollars in spoiled and wasted honey. I have invented a plan along this line which I predict will supersede all contrivances for squeezing, melting, and draining cappings.

I use a cleaning-box made like the diagram shown herewith. It is very simple and inexpensive, and a pleasure to operate. I allow the day's cappings to drain over night in the uncapping box or tank, and

the next morning dump them into the cleaning-box. The bees will do the rest. If there is a colony in the yard slightly dis-



eased with American foul brood it is a good plan to use such a colony for cleaning the cappings, for the disease exists in the combs anyway, and it can be treated in the late fall after the work is over. The combs above the excluder may be combs that have been above an excluder over a diseased colony, so nothing is wasted.

The box may be any size to fit requirements, but one should be careful to get it large enough. I used the plan last season with a small box, and it worked so well that I feel safe in recommending beekeepers to use a large one. My new box is 4 feet square and 3 deep.

One would naturally ask what is to prevent honey dripping from the wet cappings above the screen down on to dry cappings below? I have had no such trouble, because I chop up my cappings at the end of the day and allow them to drain all night in the uncapping-tank, so that by morning there is not enough honey left in them to drip.

Furthermore, the bees take all the drip that comes their way before it has a chance to fall down on the dry cappings. I have had colonies that would take 30 pounds of syrup from a feeder in one night, so I feel confident that one colony will take all of the drip from my large box.

The galvanized screen that the cappings rest on should be $\frac{3}{8}$ or $\frac{1}{2}$ inch mesh. The bees, being on the under side of the screen, stick their tongues in between the chopped-up pieces of cappings and take out all the honey they can reach. Then I suppose they clear away the dry particles so as to reach the honey further in. At any rate the dry cappings fall to the bottom of the box.

I use a glass tube to connect the hive with the cleaning-box. This causes the bees to enter the box quickly, and also enables them to find their way back into the hive readily, as the tube permits a little light to get into the box.

Woodbridge, Ont.

LET THE BEES DO THE WORK

A Plan for Cleaning Honey from Combs after Extracting, or from Partly Filled Sections. A New Way of Finishing them

BY G. A. DEADMAN

Before putting away our extracting-combs in the fall or at the close of the honey harvest we much prefer having them clear of honey, as they are certainly nicer to handle, apart from the possible souring of honey adhering to the cells when put away direct from the extractor.

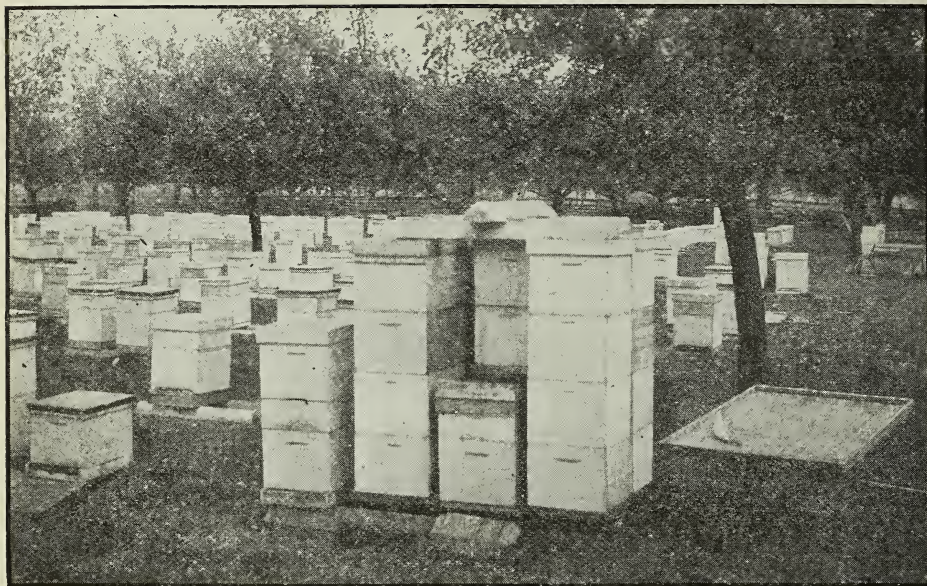
There are different ways of doing this. The common way, probably, is to place them indiscriminately on the hives. Apart from the possibility of having a cluster of bees in the super next the brood, which have to be gotten rid of when removing, there is more danger of spreading disease that may exist in the apiary. I am inclined to the belief that the little honey in each super is as good as lost when divided up among so many. It does more harm by the excitement caused than good.

The plan we have been using for many years, and described at the Ontario beekeepers' convention in Toronto, is as follows:

A stand or platform is made that will be large enough, not only for the colony of bees that is to do the cleaning up, but for five tiers of supers; viz., one tier on each of the four corners and one directly behind this colony. This stand should be large enough so that, when the supers are in place, there will be sufficient space between

each tier of supers to allow the covers to be placed on each tier. This space between the tier is covered so that no bees can enter from without. It is better to allow a little extra, so if the stand should sag somewhat in the center there will still be room enough for the covers. As will be seen in the illustrations a lath is nailed around the outer part of the bottom of this platform on which to rest the supers. A piece of lath two inches or so long is also nailed in the center corners for this same purpose. Now, when the hive containing the colony of bees is in place there will be a bee-space below, giving access to every super in each tier.

When making this platform, which, of course, varies in size, depending upon the size of the frame you use, a simple plan is to take an empty hive which is to represent the colony that does the cleaning up, and place it on a level place or floor. Next place a super on each side of it, one at each back corner, and one behind. Put covers on each, and allow half an inch or more between them. The space between the hive and supers is the width of the strip you will require to go between, which rests on the lath that provides the bee-space below. Now you can either make the platform a little larger and nail on a strip to keep the supers in place, or can make it the same



G. A. Deadman's stand with 20 supers of wet extracting-combs that have been cleaned up by a colony of bees. The cart is shown ready for the removal of the supers.

size and nail a lath or strip all around the stand. This is not really necessary, but it prevents any possibility of the supers shifting and allowing the bees to gain access from the outside. If they should it might be all up with your colony of bees that are employed in this way. The front entrance can be contracted to possibly two inches, as the bees, having access to so many supers, their forces are divided. Make the bottom of this stand either of matched lumber or well jointed, and that will not shrink. Some 2 x 4 scantling, or better, 3 x 4, make good supports to nail the floor to. If only two of these are used (which makes it easier leveling) then place them 8 inches or so from the end of your boards. This will prevent your platform or stand from sagging in the center, which it might otherwise do.

There is a choice between having enough stands to accommodate all supers that are not required for the fall flow, and leave them in there until ready to pack for winter, or to have only one, and have one colony do all the cleaning, removing the supers and replacing by others as fast as they are dry. The former plan has these advantages: Your supers are not taking up valuable space in the honey-house, and any danger from moth-worms is obviated. When removed late in the season not a bee remains, and the supers are so tightly held together that a tier can be lifted at one time. The

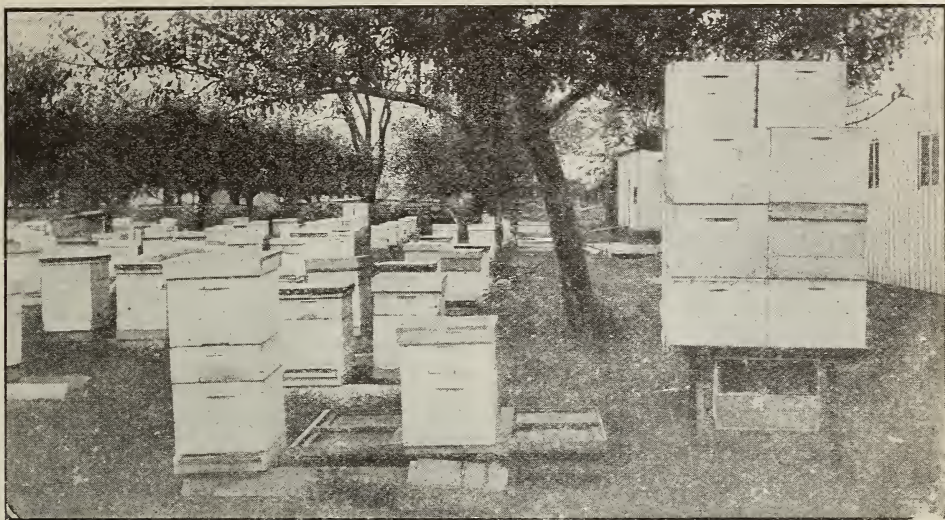
photo shows four supers in each tier; but we sometimes have five, and our frame is two inches deeper than the Langstroth.

For obvious reasons I select the first colony in any row or rows nearest the honey-house for this job. By this plan combs from diseased colonies can be kept by themselves, and then any free from pollen I consider safe to use again. I keep the others frequently for use again in such colonies; but that is another story.

I might say that supers are preferably put on these stands about sunset, or on a rainy day. Just as soon as these begin to accumulate in the honey-house we draw them out, even tho not sufficient to fill a stand, as more can be added any time. If colonies are in pairs one may have to be moved a little to make room for the stand, but the bees soon find their location.

FINISHING PARTLY FILLED SECTIONS.

Those who have had any experience in the production of comb honey know too well that it is very difficult to have every section completed, or sufficiently so as to make them all salable. Apart from those that may be sold as second class, there will be others that are not, tho possibly coming very near it, while there are others again that can only be extracted. We used to extract them by inserting half a dozen in frames made for the purpose. Not so now, however. Those that require only a little



If desired, partly filled sections may be placed over the colony, and the honey from the wet combs used to finish them up.

finishing to make them salable are put in a section super and placed over the colony of bees on the stand, while the others are put in section-supers also with no separators, first uncapping any that may be capped. We put the supers on the stand the same as the extracting-supers. The honey in these will be carried by the bees to finish up those on the hive.

It is a good plan to place a wet extracting-super below each tier of comb honey

so as to get the bees started. Of course, one can use wet extracting-combs only to finish unfinished sections. There are many sections that are practically filled, but not capped. These, when finished, may class as extras. Sections that are capped or partly capped, but very thin, should be uncapped. Otherwise the bees may build over the cappings, or back of them, making an irregular surface.

Brussels, Ont.

THE SWARMING PROBLEM ANALYZED

BY J. E. HAND

I am aware that my views upon this subject will not be regarded as orthodox doctrine; but before judgment is rendered it is the part of wisdom to weigh the evidence carefully. For several years I have believed that the law of swarming is not correctly interpreted; and this conviction became a certainty when my mammoth 16-frame colonies built queen-cells and began swarming two weeks before clover harvest, with plenty of room in brood-chambers. This experience led me to look for the real basic cause of swarming, and resulted in the conclusions recorded in this article. While we cannot point with certainty to one independent factor as a sole cause of swarming, it has been ascertained that the queen is the pivotal point of the swarming problem. Give me a queen of undiminished fecundity and I will show you a non-swarming colony, proving the correctness of my thesis.

THE LAW OF QUEEN-CELL BUILDING.

Queen-cells are inseparably associated with swarming; therefore, before we can fully comprehend the swarming phenomenon we must have a correct interpretation of the law of queen-cell building in its true relation to the law of swarming. While queen-cells are built under two different conditions, the basic cause of all queen-cell building is "supersedure," therefore there is virtually one-kind of queen-cells with a manifold mission—1, to supersede a failing queen; 2, to supersede a departed queen; 3, to precipitate swarms. Nature has ordained that preconstructed cells shall be built upon the slightest indication of diminished fecundity of the queen, and at no other time. Queens are subject to the laws of nature and physiology; therefore the heavy strain upon the organs of reproduction required to develop several thousand

eggs per day often results in temporary exhaustion of fertility, causing the immediate construction of supersedure cells. This condition is likely to occur during the height of breeding, known as the swarming period.

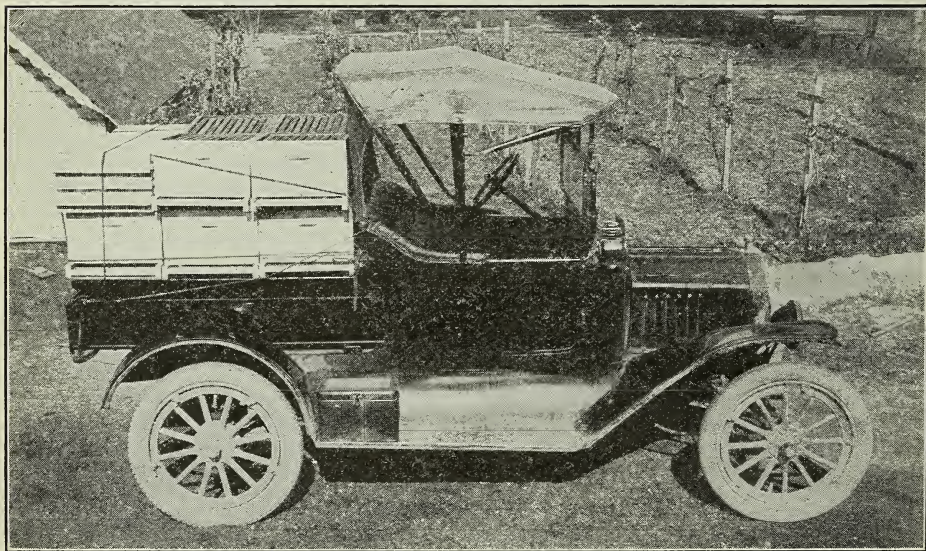
THE LAW OF SWARMING.

It is well known that a capped queen-cell is an element of antagonism to a vigorous queen, and that, during her period of temporary exhaustion, or broodiness, a queen will tolerate queen-cells and assist in her own supersedure by laying eggs in them—a purely normal impulse analogous to that of a broody hen wherein the mother instinct predominates—and will lay eggs in queen-cells under no other conditions. By the same law of nature and physiology, the queen usually passes the broody stage and regains her wonted power of fecundity in a few days, in which condition the presence of capped queen-cells is an element of discord, and a reaction occurs which culminates in the precipitation of a swarm if other conditions are favorable; otherwise the queen will destroy the cells and resume her duties with rejuvenated energy. An open cell is not an element of antagonism; therefore the reaction occurs, and the swarm usually issues shortly after the first queen-cell is capped. The potency of capped queen-cells to precipitate swarms is abundantly demonstrated by the issuing of after-

swarms, often repeated as long as a quart of bees and a queen-cell remain.

From these observations the following deductions are drawn: 1, swarming is a momentary impulse and not a premeditated act; 2, preconstructed queen-cells are the *cause* of swarming, not the *effect*; 3, every queen born is cradled in a supersedure cell; 4, special swarm-cells, other than post-constructed, are purely nominal; 5, the presence of a queen of undiminished fecundity is proof against queen-cells, therefore immune from swarming. We prevent swarming by requeening before the zenith of fertility merges into broodiness, thereby equalizing the breeding season between two queens without exhausting the fertility of either. This method simplifies manipulation and keeps the brood and bees together without developing the swarming impulse, which is purely a matter of diminished queen fecundity. It would seem that colonies in large hives would be more likely to swarm than in smaller ones; but there is another angle to the situation. Queens cannot control egg production; and if time is wasted in looking for available breeding-cells, eggs are promiscuously scattered over the surface of combs much more rapidly than in normal laying; therefore such hives tax the fertility of queens more severely than larger ones. Under such conditions some queens drop several eggs in a bunch.

Birmingham, Ohio.



Our Ford runabout converted into a light truck, as mentioned editorially June 15.

TIMELY HINTS ON QUEEN-RAISING

Using Naturally Built Cells without Transferring

BY JOSEPH GRAY

The underlying principle of all queen-rearing may be condensed into four words—*crowded, clustering, queenless bees*. Some may question the queenless part of this statement; but the *principle* is there, even tho a queen may reign in another part of the hive.

Queens should be produced from healthy stock, and in a perfectly healthy neighborhood, therefore a strict watch should be kept for both types of foul brood, and, I am sorry to add, *Nosema apis*. As regards locality for a heavy or light flow I am somewhat undecided. I do know that my greatest hatch—40 cells on one comb—were raised during a heavy flow. The nuclei do well at such a time; and so, while a light flow may give a little less trouble from the crowding of combs with honey, still I rather favor a heavy flow of nectar.

METHOD.

All queen-raising falls under two heads—man-made cell cups and grafting, and bee-made cells and natural selection. I have always pinned my faith to the latter. "Queens raised direct from the egg" has been my slogan.

It is immaterial who first used the flat comb. Suffice it to say that in 1909 at the Lancashire Royal Agricultural Show, England, in a lecture on queen-raising I exhibited a quarter-frame hive and flat comb with 9 fine queen-cells thereon, and brought forth the principle of "crowded, clustering, queenless bees." Do I still advocate so small a frame as 4 x 7? No. Why? Because the larger and bigger the cluster, the better, both for raising and mating.

At the present time I am using the full-size American standard frame here in the Far West. The more we can cut out the fads and make one article serve two purposes the better. It is next to impossible to store combs except on the colonies. The moths get them every time.

SELECTING THE BREEDER.

One season I was going thru 1000 colonies. At yard No. 7 I came across a colony that for two seasons had filled two supers to the others one. I never saw that queen, yet she was my favorite. Somehow I think it is habit; but I cannot help marking a queen a breeder if her colony shows exceptional honey-gathering qualities.

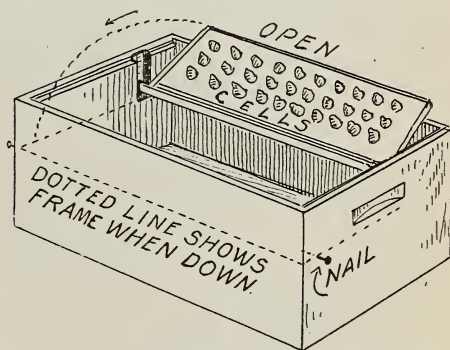
After honey-getting comes temper. At

yard No. 8 didn't we "beat it" double quick? Colony No. 4 was the mischief-maker. That queen did not reign long. She interfered too much with our work. The temper of the bees from my favorite queen was always even.

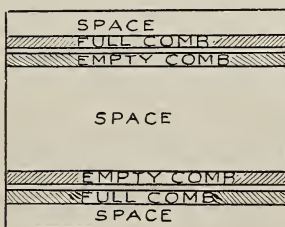
The drones, being the production of the queen only, are full-blood with the queen; the workers and virgins are half-blood, hence the drones should be the equal of the queen in color. I note the evenness of the worker's markings last. These are the index to the purity of the queen's mating.

THE EQUIPMENT.

Take a shallow super; make two saw-cuts at each end, as shown, and chisel out the side wall between the saw-cut, and level with the rabbet for a depth of about 2 inches, leaving 2½ inches below the frame. This allows the top-bar to drop in the slot,



and forms a pivot for opening and closing the frame. Two nails are driven thru the end walls as supports for the bottom-bar end of the frame. This allows the frame to be opened and closed like the leaf of a book, without removal from the super—a great convenience when said frame is covered with a big cluster of bees. It takes very little smoke to uncover the cells sufficient to examine or cut out.



Having previously inserted our combs into the breeding colony, we are ready to prepare for cell building. It is easier to

handle combs than hives, therefore a fresh hive is placed on a new stand, and the combs and queen that we do not want are carried to the fresh hive, leaving, besides the bees, two full combs of honey and pollen, which, along with two empty combs, are arranged as shown in the diagram. For vigorous cell-building use as many field workers as nurses. They bring-in pollen, and add to the general air of prosperity. Add more empty combs as needed.

If all the bees are taken it would be best to cage the queen, remove a strong stock from its stand, and place the beeless hive in its place. The flying bees coming home make a colony, and care for the beeless brood. Later in the season the preceding colony of cell-builders can be utilized to care for the brood and queen, so that, while the fresh bees produce each batch of cells, only one colony is actually in use during the whole of the season.

PREPARING THE COMB.

Selecting a comb full of eggs, we use the cap of a fountain pen to break down the walls joining the cells, leaving the cells we desire standing with their eggs intact. A match-stick will remove the broken walls and damaged cells, leaving no opportunity for the bees to build two or three cells together. It is best to prepare the comb first and place it temporarily in a super; or if the colony is ready first, lay a comb of brood in place till the cell comb is ready.

After the cell-building comb is in position a strip of cloth or canvas the size of the frame should be laid on the frame, and over the canvas a sack which is tucked in and reaches down into the lower hive. The sack forms a connecting wall between the flat comb and the upright combs below. The center space gives the big cluster room.

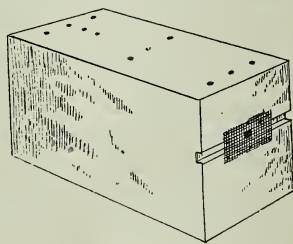
Finish the work by marking the hive on the back as follows: 16/5 A, cells due. This means that the colony was prepared May 4 from breeder A. This allows the cells 12 days, and allows a margin of time for the apiarist to use the cells.

Mishaps will happen sometimes, and it is well to examine. The cluster may not form, or all the eggs may be missing; also, if not enough cells are started, another colony may be started cell-building.

THE NUCLEUS HIVE.

In this climate one needs no heavy double-walled hives for the nuclei; and as lightness and convenience are important factors I looked around to secure a box needing the least work to convert it to a nucleus hive. Apple-boxes fill the bill, one end making the two nucleus hive-ends 5 inches wide, allowing room for a three-frame nucleus. No dummies are needed when only one or two frames are used.

One of the difficulties of nuclei is robbing. The Dr. Miller wire-cloth tube entrance is excellent, but not convenient in use. Hence we employ the same principle. Our nucleus entrance consists of a $\frac{3}{4}$ -inch hole bored in the center of one end, then a groove cut half way thru the end. Over the center is two-by-three-inch screen. This makes an entrance away from the ground—a miniature alighting-board at each end, and the passageway protected from robbers. When desired a bit of soft paper or cotton will close the ends, leaving a screened entrance for ventilation.

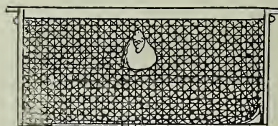
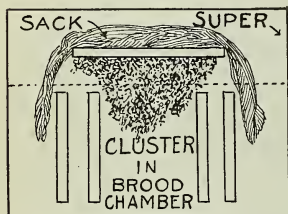


MAKING NUCLEI.

If the brood has been spread according to the plan I gave on page 1041, Dec. 15, 1915, and repeated every two weeks, the making of nuclei is simple. When bees are flying freely, and most of the field workers are away from home, open a stock with as little disturbance as possible, taking out a comb of brood and all the nurse bees, also a comb of honey and bees. This should be sufficient to form a nucleus. Close up the entrance with soft paper, as previously mentioned, for one or two days. By this method nuclei can be made in the same apiary. The cells, when cut from the cell-building colony, are inserted into the nuclei by cutting out a piece of comb and pressing the cell into the apex, leaving the space below for the nurses to crowd around. At the same time a cell so placed is neither crushed nor torn by crowding against the next comb.

THE RECORD.

The nucleus record, as given in a previous article, I have slightly improved. The want and spare columns are the same; the simple



terms cell, virgin, queen, are the same except that three grades are added for the queen—extra good, good, and medium.

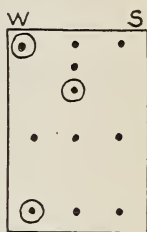
The queen is judged by looks; and experience enables the apiarist to detect the appearance of an extra-good queen. The nuisance of carrying around blocks, and the wind blowing the same way, is done away with by the use of harness rivets, which can be carried in the

Want			Spare		
Bees	Extra good	Bees			
	Good				
	Medium				
Stores	Virgin	Stores			
Cell	Cell	Cell			

pocket, and as many used on each hive as required. Small holes are bored at the points indicated, and the rivets pushed into the holes.

The diagram would read as follows: The two rivets shown in the want column indicate bees and cell wanted; the rivet at medium, queen combined with cell wanted, shows a poor queen; hence cell wanted because the queen is too poor, but she will hold the colony in shape if no cell is available. At the same time it is known there is a queen to look for and kill before inserting the cell. Furthermore, more bees are required, the nucleus having become depleted thru delayed mating.

Heber, Cal.



SUPERS OF HONEY ON A TOBOGGAN SLIDE

BY G. E. PHILBROOK

During extracting time I run my supers in and out of the honey-house on slides or tracks made of 1 x 4-inch material on edge. These pieces are set in the side of the building about 3 feet from the floor, and they project the width of one super outside and the width of two supers inside. A thin strip is nailed outside the track so that the supers will not run off. I grease the tracks with tallow, so that the supers will slide easily.

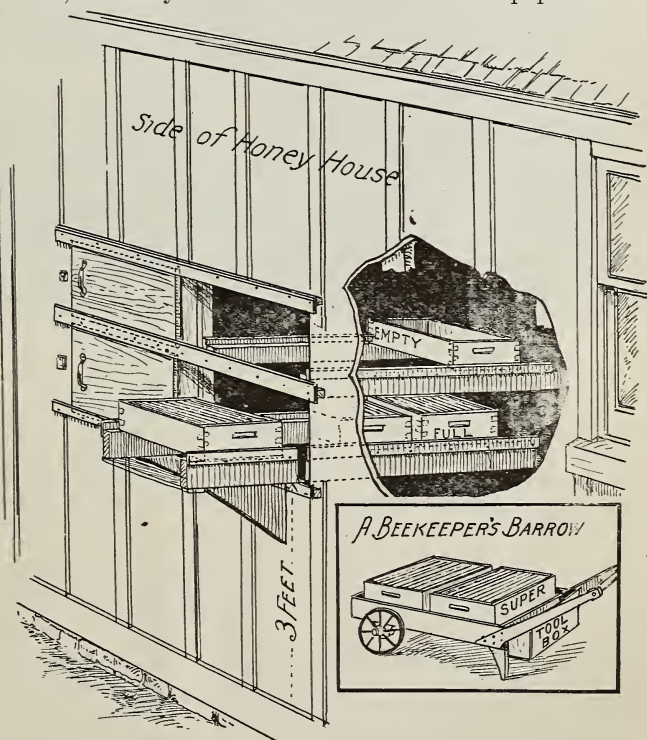
Another set of slides is put in just above the first one—this for the empty supers. These do not project outside the building.

Each opening is provided with a sliding door on the outside of the building. When bringing the supers in, it is the work of but a moment to slide in the doors, push in the full supers, and pull out the empty ones.

I use a honey-cart that is very convenient. I make a box the size of two supers set side by side, and per-

haps 9 inches deep. Eight inches from one end I locate the axle on which are wheels 18 inches in diameter. The legs and handle go on the other end of the box.

I line the bottom with tar paper to catch



any dripping of honey and wax. Between the handles there is room for a tool-box.

HELPING OUT THE BEE-ESCAPE.

To hasten the work of the escape-boards I put them on about four or five o'clock in the afternoon; and then a little later, just before dark, I remove the covers of the

supers for a few minutes to let the bees out, at the same time blowing a little smoke in the top of the super. When the covers are replaced, so many of the bees have escaped that the few remaining are surely out by the next morning.

Lakeside, Cal.

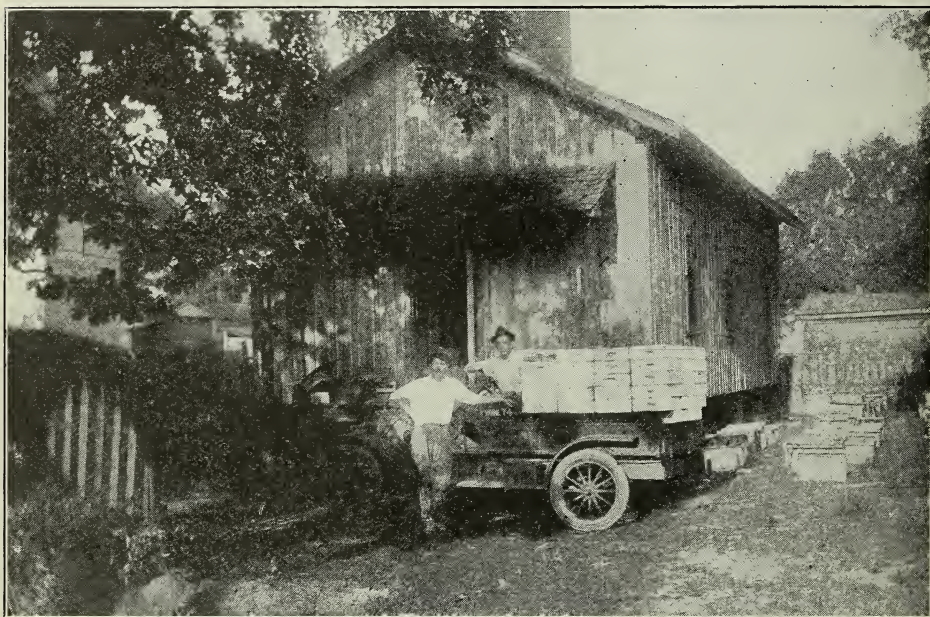
"FORDING" COMB HONEY OUTYARDS

BY H. O. CRAMPTON

My honey-house was used by the federal soldiers during the Civil War as a store-room and supply-house, and was the scene of much fighting, so the old citizens here tell me.

year. It is just coming in bloom now, May 22, and the bees will be working on it well in about a week if the rains don't come about that time.

I use a Ford to visit my out-apiaries. I



Historical honey-house used by H. O. Crampton, Columbus, Miss. During the Civil War the building was used by the soldiers as a supply station.

The bees shown in the picture are to be transferred to an outyard, having been brought to town temporarily until a better location could be found. *Melilotus* is our main honey-plant, and it looks fine this

am working only for comb honey this season. My helper and I do all the work at the yards. I have 84 supers with half sheets of foundation to take to one yard.

Columbus, Miss.

BEE-CLUBS FOR SAN FRANCISCO BOYS

BY RALPH R. BENT

For the past few years considerable work has been done by the United States Department of Agriculture and the University of California in organizing agricultural clubs

for boys about the state. Every country boy has the opportunity of growing his acre of corn or raising his litter of pigs. But with the city boy it is different. It is im-

possible for him to get a plot of ground upon which to exercise his latent abilities in this direction. He can, however, keep bees, as they require but little space and may even be kept upon roofs of buildings if necessary.

The first beekeeping club for boys in San Francisco started with but five members. Under the leadership of the writer they secured a room in one of the San Francisco churches. Three of the five boys each purchased a hive of bees, and the other two looked eagerly forward to the time when they too might have some. Thus the first club was organized.

This club has now about forty members. The boys have their own officers, and hold regular business meetings. After the business is over, the leader or some experienced beekeeper, or other person with a practical knowledge of the subject, gives a talk on beekeeping. Some evenings the entertainment consists of a live-bee demonstration. At other times they have the use of a stereopticon and set of slides to illustrate lectures on particular phases of the subject. The motto of the club is, "A Million Things to Learn about the Bee."

After the program of the evening is over, the boys supply themselves with honey to sell. This honey is put up for them by one of the local dealers and bears their own label. This honey they sell at a good profit, the proceeds from which go toward additions to their bee equipment. The meetings close with honey refreshments. Parents,

being always welcome, often come to visit the meetings.

On Washington's birthday, Feb. 22, all the boys, as well as all adults living about San Francisco Bay who were interested in beekeeping, met at the writer's home in Sausalito. This is a little town at the foot of the hills in Marin Co., just across the bay from San Francisco. Here they held a bee-club picnic or field day. Every one brought his lunch and prepared for a thoroly enjoyable time. Live-bee demonstrations, lectures, and practical working explanations of the hive and fixtures constituted the program of the day. Those who were interested started a collection of the honey-producing flora of that part of the state. A large number of people who had never seen the inside of a hive before had the opportunity to work practically with the bees and handle the frames. Efforts were made to organize better the clubs in the various towns, and make it possible to have a boys' union apiary, located in San Francisco.

As time goes on and this work grows, many clubs will be organized about the country. The greatest problem will be to find capable leaders who are willing and anxious to give a part of their time to such work. It is hoped that these clubs will some day extend into the schools and institutions of learning in our country to such an extent that young people may come more and more to learn of the mysteries of nature thru these wonderful insects.

Sausalito, Cal.

THE ROLE OF INSECTS AS CARRIERS OF FIRE BLIGHT

A Reply to the Criticism, page 384, May 15

BY PROF. H. A. GOSSARD.

IN GLEANINGS for May 15 is a review, not of a bulletin published by the Ohio Experiment Station as your wording might lead your readers to suppose, but of a paper read by me before the Ohio State Horticultural Society; therefore whatever of blame may be attached to its publication must rest upon me alone, for no other official of the station is in any way implicated.

Now, a paper that gives rise to so many and such gross misunderstandings as you gather from it would certainly seem to need some additions or explanations to make its purport clear. You have gotten an entirely wrong idea as to my attitude of mind and beliefs regarding the entire question. The usefulness of the honeybee to the orchardist can hardly be called in question, no matter if it does carry blight; and the pre-

cise manner of the disease-transmission is yet less important if the bee is conceded to be a numerous carrier. The real question under investigation is, regardless of whether bees are or are not carriers, can they be so handled that they will prevent or reduce the damage incidentally caused by themselves and by other carriers of the blossom form of blight while performing the indispensable work of pollination? Since the honeybee is the only one among the pollinators that is subject to human manipulation for a definite purpose, it is the only insect in which a possibility inheres of being advantageously used for such an end. The mode or modes by which it transmits the disease may be helpful in determining the practicability of employing it for such use.

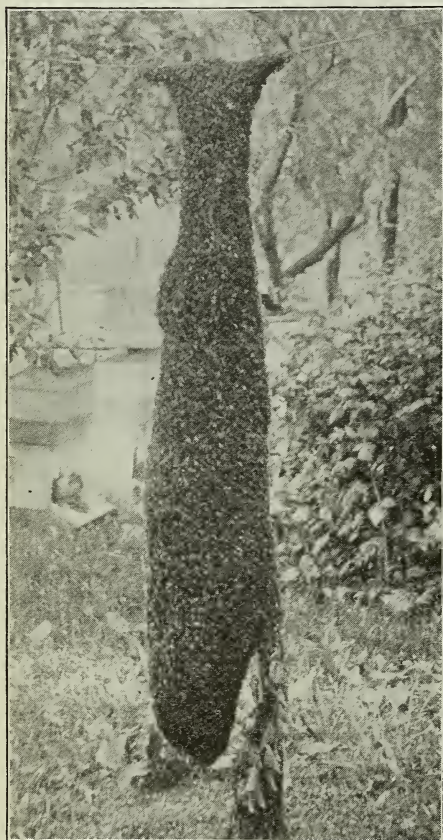
If I have any prejudice regarding the

status of the honeybee as a useful insect I must confess that, rooted in my mind only a little less firmly than the law of gravitation or of chemical affinity, is the conviction that the age-long association of the honeybee and of the fruit-grower cannot be dissociated as a permanent or general practice, on any account, without great and useless losses to all who make use of fruits or seeds or the plants grown from such seeds.

If the choice had to be made between the extermination of bees from the earth and the total sacrifice of the two species of fruits—apples and pears—most affected by blight, I confess that, were I consulted, I would at once give the decision to keep the bees and then makeshift with other fruits of which there are plenty in the world. The sacrifice of two or three species of fruits, however important, would seem to me of less consequence than the immeasurable damage that would ensue from the destruction of our most important pollinizer, and

the one subject to human control. I am not conscious of any other belief that might disqualify me for such an inquiry; and I regard this creed as legitimate, for, without being a scientific dogmatist, one must adopt at least a few broad and accepted principles as already proved, against which to measure the facts he accumulates or the theories he forms, to ascertain if they harmonize.

You make an inference that, if the hive should be found a distributing center for germs, the bee must at once be considered the very worst of all carriers, and seem to think the conclusion axiomatic. Now let us shift the viewpoint. I think that both fruit-growers and beekeepers alike agree that blossom-blight does not appear to a great extent until some time after the blooming season has opened, and that in some seasons, like the present one, it arrives very late or not at all. I am quite sure the hive is beyond all reasonable suspicion in the spring, because, so far as we know, the germ does not live in honey for much longer than 70 hours. If, therefore, the orchardist keeps blight centers from his own orchard by trimming them out, and puts a sufficient number of hives in the orchard before the bloom appears, will he not insure the earliest pollination possible, and have a larger number of fruits beyond the danger of blight before it arrives than he could otherwise secure? If the bees themselves carry it later, is it not the more necessary to have them present in abundance, while still clean, to do as much work as possible before the blight-wave appears? If, at the end of the blooming period, they should be carrying it more rapidly than at any other time, whether from flower to flower only, or in accelerated degree by adding distribution from the hive, is it not the more necessary that, as soon as the bloom arrives, there be in the orchard an abundance of clean bees to insure the earliest pollination possible of every available blossom before the blight-wave appears? Whether a removal of the hive at some stage of the work might be advantageous is an additional question. But is there not a possibility here of manipulating bees to the mutual advantage of both the beekeeper and the fruit-grower? Is it much of a paradox that the orchardist who trims blight from his orchard, and keeps many hives of his own instead of depending on his neighbors' bees, almost uniformly has a larger crop and suffers less than his neighbors from the effects of blight? I plainly stated in the paper criticised that I did not think any developments relating to the manner of distribution of blight would



The kind of swarm that always looks good. From Page Bros., Avon, N. Y.

change the status of the bee as a beneficial insect in the orchard, and still maintain that opinion. On the contrary, as suggested above, it seems to me the bees may be so manipulated that they will, to an important extent, reduce blight damage, regardless of any and all modes by which it is transmitted, either by themselves or other insects. Your conclusion does not appear to me to have been axiomatically correct at all. The above questions are frankly speculative and interrogatively stated. The paper you criticize was frankly speculative, and an "interrogation-point followed the heading, 'Is the Hive a Center of Infection?'" Much scientific work is first based on a theory which is later tested exactly as I wished to test this question. We have not yet taken the record on this season's work; but there would seem to be little likelihood of securing data, for there was almost no blossom-blight in our orchard. The question seems to me to be subsidiary—one on the side—and, however answered, not likely to injure either the keeper of bees or the orchardist. It seems to me that every bit of light we can obtain on this question is certain to benefit both classes, for certainly the mutual dependence of our fruit-trees and bees upon each other is too well established to be shaken by such a comparatively trivial question as to their method or methods of transmitting a single disease, affecting only a few species of fruits, and which has been with us for scores of years without exterminating these fruits, and under conditions that strongly suggest that said fruits can be partially freed from blight effects by the intelligent use of bees. If I erred in raising the question so early, as to the hive being concerned in the transmission, it was because I, like you, was relying too much on what seemed to be axiomatic reasoning, but I do not understand how anybody could conclude that I supposed I had answered the question, and I do not see how I could wish to answer it finally one way more than another, since my opinion as to the usefulness of the honeybee would hardly be modified at all by the result. We are doing, and have been doing for three seasons, many of the things you criticize us for not doing, but have not reported them because somebody else reported them first, and the results were, therefore, already in print. The paper in question was not intended for wide circulation, and no attempt was made to give a balanced treatment of the entire subject. The fruit-growers simply wanted to know if we were trying to advance somewhat the knowledge already possessed about the disease, and if we were making any

progress beyond what was already known to them.

In some places in your critique you seem to me to be unfair in the extreme in the impression you give your readers as to the character of the paper read, as in this:

"These facts should satisfy any prejudiced defender of the bee, to whom Professor Gossard jokingly gives the name 'bee monomaniac.'"

The paragraph in my paper from which you quoted read thus:

"If any quarantine monomaniac proposes to banish bees to restrict the spread of blight, I favor immediately incarcerating him in a cold-storage plant and lowering the temperature until he can dream of nothing except fragrant flowers, humming bees, and summer weather. The bee monomaniac who will believe nothing at all adverse to his pets is still nearer sanity, in my opinion, than the extremists who suppose that the Creator and all his creatures and laws can be regulated by legislative enactments."



Two swarms clustered together on a $\frac{1}{2}$ -inch limb of a peach-tree. Sent by Daniel Whitmer, South Bend, Ind.

The paper was frankly and aboveboard speculative, and I am sure it was not misunderstood by those who listened to it, as the discussion following the reading proved. However, your criticism of some other phrases and expressions in the paper are quite justified, for I perceive, now that my attention has been called to them, that they might be construed to imply a wish to obtain certain results, when I meant we were merely seeking to learn if certain facts would be obtained which would agree with the theory interrogatively propounded. I hope these slips of language, due to rapid writing of a paper, against time, for the Horticultural Society, will be interpreted as they were meant and not as they were written. In your conclusion you express the

hope that I "will not drop the problem until I have found out how much truth there is in the theory." Thank you most heartily for the implied confidence that I will give an honest report. I esteem your belief in my integrity much more than I would your confidence in my scientific activities, tho, of course, I should appreciate both. All the work has been so checked, and will continue so to be, that I could not give a wrong report, even if I were so minded.

May I ask if you will give space in your paper for this somewhat extended reply, in justice to the other officers of the Ohio Station, as well as to myself, and I shall much appreciate the kindness.

Wooster, Ohio.

COMB-HONEY PRODUCTION IN OUT-APIARIES

BY W. A. LATSHAW

About May 1 we go over all our bees to make sure that none lack for honey, to feed them up, to clip all the queens' wings, and to help out the weak somewhat by giving frames of brood and bees from the stronger colonies. This we keep doing until we have them fairly well equalized, and shaped up in good condition for the raspberry-clover honey-flow, which begins here about June 9, and with it swarming starts with a vengeance.

With the swarming season at hand it becomes necessary for us to visit our bees more often, especially when it is at its worst; and this we do, making the rounds once each week to each out-apiary to give more storing room, and to take off the finished comb honey, and ease and grade it, and to prevent and control the swarming.

Now, our method of swarm control and prevention is very simple. During the height of the swarming season we go over all the colonies and cut the queen-cell out of all that are preparing to swarm, once each week, or every seventh day. As the swarming season advances, and when the swarming mania begins to wane, it is necessary to go over them for swarm-cells only once every ten days; but during the worst of the swarming we have found it best to cut cells once each week, especially as we have to make the weekly visits anyway, to take care of the finished comb honey, and to give more room; for when swarming is worse, honey is "worse," provided your bees are prevented from swarming, and they will be if you have the queens' wings all clipped, and make a careful job of the cell-

cutting, being very careful not to miss a single one.

Only the hives that are preparing to swarm are opened during our cell-cutting rounds, and this we ascertain by turning the hives one after another off their bottom-boards (which are loose) and smoking the bees back off the lower half of the brood-combs, so as to be able to see the queen-cells, if any, that have been started; and only such as have queen-cells started are opened, it being necessary only to turn the rest back on their bottom-boards, and to proceed to the next. In this manner an out-apiary can soon be looked over for swarming, and the cells cut out, provided you have a big smoker and use plenty of smoke in the smoking-back operation. Another thing, don't be afraid to switch the hives around on their upside-down corner, or turn them upside down, if need be, to get the light so you can see down in.

If you do a good job of looking for cells and cell-cutting, and have your queens' wings all clipped, and do it regularly once every week or ten days you will be absolute master of the swarming problem so far as comb-honey production is concerned.

When we wish increase we make it naturally by hiving swarms that issue during our visits to the out-apiaries, or else we take two frames of brood and bees with the queen from the old hive, then place them in the center of the new hive on the old stand, and then set the old parent colony off on a new stand and give a ripe cell. This throws the working force mostly with the two frames of brood and bees and queen on the

old stand, and the brood mostly with the old parent hive on the new stand.

All sections are startered, supplies worked up, and hives nailed and painted, at the out-apiary honey-houses where they will be needed; and in the same manner the honey is scraped, graded, and cased ready for the market at the outyards. Most of this work is done by our crew of helpers which we take from yard to yard during our weekly visits, some doing the shop work, while the rest are busy with the bees, tho we sometimes find it necessary to make special trips to work up supplies. We use a Ford auto to go from yard to yard and to do our light hauling with, and find it a great convenience.

As soon as the honey crop is over, which is about the middle of August here, the escapes are put on, and the supers stored

away in the honey-houses until next season; and then if any of the hives need repainting, they are repainted at this season of the year. We try to see that all colonies are headed with good queens during July and August.

All colonies are fed for winter between September 15 and Oct. 1, and we make sure that every colony has an abundance of stores to last until fruit-bloom the following spring. In order to make a certainty of this matter we have scales rigged on a wheelbarrow, and go down the rows and weigh every hive, and mark the weight on the back of each. Then each is fed so as to contain 25 lbs. of stores.

Our bees are all wintered in the cellar, and are hauled to and from the out-apiaries on sleds.

Clarion, Mich.

SHOULD THE POETRY BE SEGREGATED?

BY GRACE ALLEN

[By an oversight the following protest or "retort courtoeous" referred to by Mrs. Allen, p. 428, June 1, was held over, tho written just after the appearance of Mr. Baldwin's reference to Dr. Phillips' views of poetry as given in *The Beekeepers' Review*, page 89, March 1.—Ed.]

And now see what has happened! A great scientist—even our very own beekeeping scientist, Dr. Phillips, so universally respected and so earnestly studied—has said that we ought to keep our poetry on a separate shelf from our practical working prose! And then Prof. Baldwin, for all the courtly (and thoroly appreciated) bow with which he ends, says in effect, "Aye, aye, sir!" But now aren't you glad, all of you, that God doesn't run the universe on that separate-shelf system? Had he felt it necessary or wise to divorce beauty and poetry utterly from practical everyday work and necessity he doubtless could have made some satisfyingly prosy fruits without the scarlet of the apple or the gold of the orange or the poetry of green, sunlit trees, or the shower of fairy bloom in April and May. He quite surely could have caused the earth to bring forth some pretty sustaining and nourishing meal and flour for our bread without the poetry of fields of grain swaying and rippling in the wind and shadowed by every passing cloud. He need not have put the scarlet on the tanager's wings nor the song in the throat of the mockingbird, nor let the bees hum so rapturously in June. And he could doubtless have skipped the rainbow altogether. But he did not. He spread beauty all around over our common fields and hillsides, made birds to sing even while we labor, and shot all our days thru and thru with shining light. Merely to make a

practical day and night, need the sun come up and go down again in such a trailing glory? Even the land and the water God has not kept completely apart, in dread of that mud referred to as the result of their mixing; but he makes growth and even life itself quite dependent upon the combination. for the dry prose of the dusty earth needs always the poetry of living water on it and in it and thru it to bring growth and flowering and fruit.

Or to be a bit more scientific, as perhaps the occasion demands, when the ancient nebulous mass cooled and developed and grew into this world as we know it today, not even evolution in the process or the study could ever separate the poetry of living growth from its prose. There are no separate shelves in life nor in human hearts; for over all this fair earth people thrill to sunsets and babies' eyes, and orchards in bloom and stars in the sky at night, while women everywhere sing to their children, and men go even into battle with a song on their lips. Are you not glad it is so, dear people, scientific and unscientific? And you who love bees, will any one of you handle your frames less carefully or introduce your queens less skillfully, or sell your honey less profitably, or go into winter quarters with an ounce less packing around your hives, because you have been a "great lover" of the poetry of swift silken wings shining in the sun? or because you have let

the grinding wheels of the day's prosy routine pause a bit while you catch the rhythm and beat of the great heart of things? or because you let yourself drift out for an instant into the infinite depth of wonder

and dream and poetry and prayer? I find that hard to believe, because of my faith, my many faiths, in beauty and poetry and science and people and God.
Nashville, Tenn.

A SIMPLE METHOD OF ADVERTISING HONEY

BY MAURICE E. MILLER

I read with interest Walter S. Ponder's article, p. 151, Feb. 15, on using stamps to raise money for the purpose of advertising honey. That idea works very well for the Red Cross Society, because people are willing to support a benevolent institution; but I fear that, if tried in the interest of honey-producers or any other self-supporting business, the results would not pay for the trouble.

I have before me a form of advertising which I believe would work admirably for bringing attention to honey, and attention spells sale. A certain concern manufacturing roofing makes up a double letter-head, the two inside pages of which are filled with catchy advertising regarding their product. These are printed by the thousands, and distributed in lots of a few hundred each among the dealers handling their goods. These dealers have their own regular form of letter-head printed upon the first page, and use them in their daily correspondence.

To me this idea presents unlimited opportunities for advertising if used by honey-producers. In the first place these double letter-heads with the inside pages printed with catchy information, such as the food value of honey, uses of honey in cooking, interesting facts in regard to the cleanliness

of honey, etc., could be produced in large quantities for a nominal sum. Judging by the present price of a good grade of bond paper I believe these could be produced for four or five dollars per thousand, which is little if any in excess of what most beekeepers have to pay for their letter-heads in small lots. This would permit them to be distributed among a vast number of people, but would not be the limit of possibilities of this "double-purpose" letter-head. Beekeepers wishing to advertise still more could furnish these in desirable quantities to dealers handling their goods. Dealers would be glad to use them, as the only cost would be the printing of their own form on the first page, and a sale thru their use would mean a profit to them as well as to the beekeeper.

I believe that this idea, if tried out, would prove to be the most effective method possible of advertising without raising an enormous sum, such as would be necessary to float a campaign of extensive magazine advertising. Each beekeeper who uses these letter-heads and distributes them would be independently assisting in a co-operative plan that would spread thruout the country, and each would receive results in proportion to the effort he extended.

Addison, N. Y.

MY WAY OF HEADING OFF SWARMING

BY J. P. BLUNK

The easiest, quickest, and surest way to head off swarming is the plan I am now using, which I think has all the earmarks of the Davenport "swarm secret." Prepare a hive with an empty comb to catch the pollen, a comb of suitable brood from which queens can be reared, and fill up the rest of the space with dummies. Put this hive on the stand of any strong colony that is preparing to swarm, with a couple of supers on top. Put on a good wire escape-board, and on top of all set the strong colony without its bottom-board. The flying force will all go downstairs in twenty-four hours; and so few bees will be left in the original hive that they will tear down

all queen-cells which might be on the combs—the queen, of course, being left in the old brood-chamber on top.

The queen will keep right on with her laying. In fourteen days take the old hive off, remove the queen, or leave her, as desired. If one desires to requeen, now is the time. Put one of the queen-cells built in the lower story in the old hive and set it on a new stand. Contract the entrance and remove all cells except one from the new colony. Supply frames of foundation, put on more supers, and the job is done.

If no increase is desired put the combs in the prepared hive below back in the old brood-nest, after removing the queen from

the latter. This will not take long, as the bees are scarce, as above mentioned. It is necessary to remove all queen-cells but one on the frame of brood in question.

If desired, the colony may be made up from two colonies. Set the prepared hive on top of the strong colony; place the escape between the two upside down to run the bees up into the prepared hive. Close the entrance of the lower hive; slip the upper prepared hive far enough ahead on the escape-board to provide an entrance

over the old one below. Put on a good supply of supers, then another escape on top of the super, and finally put on another colony without the bottom-board, as mentioned above. Remove the old hive in forty-eight hours, or leave it longer as desired. The flying force is now in the center hive.

Mr. Davenport was shaking to head off swarming when he discovered his plan. The reason he never had a failure was because bees without a queen will never swarm.

Moorland, Iowa.

TEN-FRAME HIVE WITH SUPER MAKES IDEAL BROOD-NEST

BY L. K. COLE

J. J. Wilder's plan, page 454, June 1, is so near the plan that I use that I wish to add my experience. I have done a great deal of experimenting in the production of both comb and extracted, using a single ten-frame Langstroth body, a double body (and contracting to one body at the beginning of the white honey-flow), a single body, and one shallow extracting-super. I have also used the Danzenbaker hive and system in the production of comb honey. By repeated experiments year after year during the past twelve years I find that for this location a ten-frame Langstroth hive and a shallow extracting-super, each containing five Hoffman frames, a regular division-board on the east side of the body, preferably, and a $\frac{7}{8}$ -inch division-board with spacing strips on one side, all held together by two super springs, make an ideal brood-nest for this locality. One has full control of all colonies at all times. The honey can be put just where it is wanted, and the brood-nest is large enough for the most prolific queen. The division-boards on both sides give plenty of ventilation; and by using the $\frac{7}{8}$ board with the spacer, a little more room is provided for easy removal of the frames.

In the extracting-supers I prefer full-depth frames, spaced wide, by using only eight frames to the ten-frame super.

In producing extracted honey, all hives are looked over in the spring and graded good, fair, and weak. Each colony in grade 1 is given a shallow extracting-super, and in one or two weeks (depending on the weather) the colonies in grade 2 are also ready for the supers. The colonies in grade 3 are worked in different ways to get them built up to full strength.

When nearly full of bees, brood, and honey, the colonies of grades 1 and 2 are given a set of extracting-combs with an ex-

cluder between the brood-nests and super, whether much honey is coming in or not, as the super forestalls any preparation for swarming.

When the first super is perhaps two-thirds full, it is raised up and an empty super placed underneath, next the brood-nest. By tiering up in this way, especially since the queen has an abundance of room for egg-laying, one practically has control of swarming.

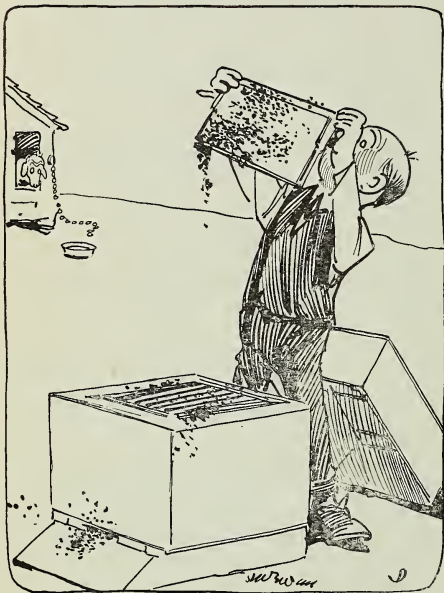
The upper portions of the brood-chamber (that is, the shallow super) can be manipulated in any way with any other colonies needing help, with stronger colonies.

In the fall, if the fall honey-flow is not suitable for winter stores, the shallow supers may be left in place until all the honey supers are removed and the honey-flow is over. Then this shallow super, which is the upper part of the brood-nest, may be removed. Under such conditions the deeper part of the brood-nest will not, as a rule, contain enough honey for winter, especially in case of colonies that have good queens. Sugar syrup can then be fed. If stores of honey alone are desired, the shallow super can be placed under the deep one long enough before the fall honey-flow is over so that the deep brood-nest will contain at least 30 pounds of honey (35 or 40 would be better, perhaps). Then when it is time to prepare the colonies for winter the shallow supers can be removed, as they will contain very little honey.

In a good year I have produced as much as 250 pounds of extracted honey from a single colony; or in case of colonies run for comb honey, 202 pounds, with plenty of honey left over in each case for winter. I am sorry to say, however, there are too many seasons when the production of fancy comb honey is out of the question.

Stanton, N. J.

Heads of Grain From Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

They say the reason the patient camel has such an ugly disposition is because they have never found the right word to say to him, and about the time you think you have found it for the bees you discover that they've changed the countersign.

Contentment.

Sitting in my sunny kitchen
With my simple lunch,
Sometimes bread and milk and honey,
Sometimes fruit to munch,
Straight across the light I'm looking
Toward a queer old shed,
White, except two nut-brown doorways
And the roof o'erhead.

There across the ragged roof-line
And the doors below,
Back and forth the bees go flashing.
And I love it so!

Then I think of formal luncheons
With their chit-chat ways
And thank God for bees and kitchen
And my home-grown days!

Nashville, Tenn.

Grace Allen

Black Italian Queens the Mother of Well-marked Italians.

I have an Italian queen that is of good color, and produces uniform three-banded bees of a good yellow color; but every queen reared from her is as black as coal. Can you give a reason for it? Did you ever see such a case? I bought her for a breeder and

have reared several queens from her, and every one is black. Her bees are uniform and gentle, and hustlers. Her sisters give nice yellow queens and bees, her mother was a five-bander and a good breeder. I have not had time to test any of these black queens yet, so I can't tell what they will do. But they are as lively as crickets.

I have also struck something new. I have a colony that will accept artificial cells all right in large numbers, but will not accept the royal jelly and larvæ put into them. Why is that?

Gimlet, Ky.

W. L. Lovejoy.

[There is a great difference in breeding-queens. One queen that will produce uniformly nicely marked Italian bees will also produce queens that are quite dark, some of them black. We have sometimes had to reject an otherwise good breeding-queen because her queens were too dark to suit the trade. One of the blackest queens we ever had produced very nice Italian bees, very gentle, good workers, having three yellow bands, altho the third band showed rather indistinctly.

Sometimes a queen-breeder is a little careless in his treatment of the cells for the queen. If ripe queen-cells are exposed to a chilling atmosphere, the queens, when they hatch out, will be dark, sometimes almost black.

Some years ago we had two different queen-breeders working for us, and both breeding queens from the same queen. The queens that one breeder reared were black, while those of the other were light-colored. When we came to examine into the causes we discovered that the man who was having the black queens was careless in the handling of his queen-cells. He left them exposed until they became partially chilled. After we cautioned him he was able to get as bright-colored queens as the other breeder.

We believe you will find that the black queens will be as good as any that you ever had for actual work; but if you enter into the business of selling queens you will find the trade will not take these dark ones.

In relation to the last question, possibly there was something wrong with the royal jelly. Perhaps it was too dry. You should get it of about the right consistency. We know of no reason why a colony should reject queen-cells containing royal jelly unless the royal jelly itself was not quite right.—Ed.]

Sealed Brood Only for Cell-building Colonies.

The writer was very much interested in an article which appeared in the May 15th number of *Gleanings* entitled "Queen-rearing for the Beginner," by J. E. Jordan. He brings up one interesting point on which I should like to have some additional informa-

tion. We refer to the idea of taking one or two strong colonies, dequeening them, and using them for starting queen-cells and for drone hives during the whole season. This is a good idea. We have followed the practice described in the A B C and X Y Z of Bee Culture, and have given queen-cells to a colony just made queenless, but there is some difficulty in keeping the queen in some place until it is time to return her to the hive again. We have had queens killed repeatedly when they were put on a frame over some other colony. We used a queen-excluder between the two hives, but it seems the workers killed the queen just the same. We found that it was better to put the queen in a hive by herself with one or two frames of brood. In this warm climate we can do this without any difficulty. We keep raising queens right thru the season, and that means making various hives queenless at different times. We find, however, that taking out queens and returning them again to their hives (they are not kept out long either) impairs their efficiency. We find that they do not live as long as they ought to when they are taken out of their hives repeatedly or even twice.

Therefore Mr. Jordan's idea of using some queenless colony during the entire season makes a strong appeal to us. Before adopting it, however, there are a few points which we don't quite understand. Mr. Jordan says, "These colonies must be kept well supplied with brood in all stages." We cannot see how he can get the bees to start grafted queen-cells in a hive that has any unsealed brood in it. We have found that the bees are much more interested in starting queen-cells on any frame where there is some unsealed brood rather than fill out grafted cells, so we are anxious to know how Mr. Jordan gets his bees to fill out his grafted queen-cells under these conditions.

We should also like to know if he has not been troubled with laying workers in a hive that is kept queenless for any length of time, even tho it is kept well supplied with brood.

San Juan, Porto Rico. A. W. Kuenzli.

Our Mr. Pritchard replies:

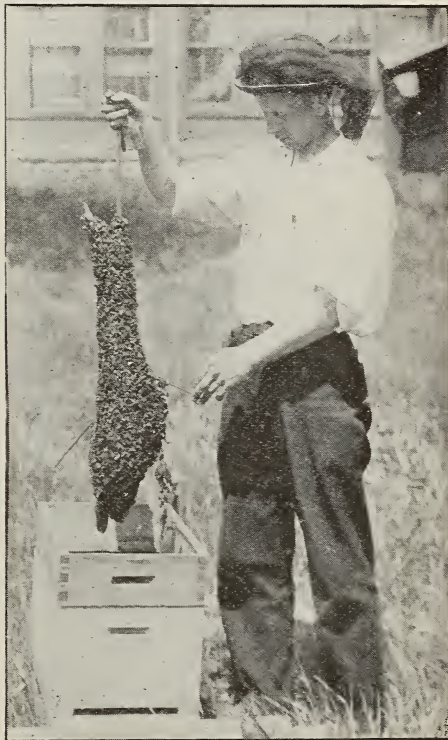
A faint A
brood with queen
over a strong colony with a queen-excluder between would be sure to result in the killing of the queen. But if a piece of wire cloth is used instead of the queen-excluder the queen may be kept several days in good condition. Having brood in all stages is a mistake. Nothing but sealed brood should be given to these colonies.

We do not like the plan of keeping colonies queenless all the season. Fertile workers are very apt to get started. We prefer to make a colony queenless and leave all their brood with them. At the end of six days, destroy all the queen-cells they have started; then graft into them every day until the brood is all hatched. Then we give them a laying queen. These colonies get

back to a normal condition in a few weeks, and go thru the winter in good shape. If grafting colonies are kept queenless all the season they are not worth wintering.

A Swarm that would Not Stay Hived.

Here is a swarm that I hived twice last summer, but the bees refused to stay where they belong. The third time I found the queen and caged her, and shook the bees upon the frames, and that time they stayed. St. Paul, Minn. A. W. Aamodt.



A bunch of rebellious bees that did not know when they were well off.

A Half-starved Queen Received by Mail Run Directly into a Hive.

The last week in May I took one brood-comb and queen and put it in a new hive, and requeened the old colony having the remaining seven brood-combs. The new queen was accepted, and allowed to stay four or five days, and then, to my surprise, when looking to see if she had any brood started, I found no brood, but two queen-cells, evidently built from young brood of the old queen. I cut out these cells, but failed to find the new queen, which I had seen three or four days before.

A second queen came in by mail late one afternoon. I put her away over night, and when I looked at her the next morning I

found a couple of dead bees stuck in the opening of the food-compartment of the cage. Most of the rest of the bees had starved except the queen and a few bees whose lives I saved by feeding honey at once.

There seemed to be only one thing to do—to introduce the queen at once, even at the risk of having her killed. I put a queen-trap over the entrance, took all the frames out, shook them on the ground so that the bees would have to sift thru the trap in going back into the hive, and, as I expected, found no queen. On one of the combs from which I had shaken the bees I put the half-dead queen. Several times the few remaining bees on that comb made a rush for her; but I blew a little tobacco smoke on them to keep them away and held the comb in my hands about ten minutes, then placed the comb with the queen in the hive and finished shaking the rest of the frames.

Four days later I opened the hive and there found the queen in good condition.

Brooklyn, N. Y.

F. Duesterwald.

Well-soaked Ground in the Fall Insures Clover Honey Crop.

Following a long wet cold spell, with but now and then a working day for the bees, warmer days have set in; and with oceans of white clover on every hand our honey-makers are reveling in nectar. It was predicted by a writer in *Gleanings* that the setting-in of winter with well-soaked soil would insure a crop of white clover, and more—that it would yield plenty of honey. The beekeepers of central Wisconsin may well rejoice, for that prophecy is being fulfilled; and, altho the weather is not as yet ideally warm, the bees are gathering honey fast and furiously.

The prospect now is that, with the warmer weather we have reason to expect, and an occasional rain to keep the white clover flourishing, another bumper crop of honey appears very likely.

Manawa, Wis., June 25.

E. E. Colien.

Held up and Killed.

My apiary contains 120 colonies of bees in two rows six feet apart, and hives 16 inches between, all resting on 2x12 planks set edgewise. At one end is my bee-supply and work-house, which I sleep in during the busy season.

I had just put on my first supers, and some were partly filled, when one morning, just before daylight, I was awakened by what I thought was a mouse trying to eat its way into my shop. I got up, but the gnawing still continued. I opened the door, and not over eight feet away I saw a skunk with both front feet on the alighting-board, his head turned to one side, and nose close to the entrance; and as I watched him he would raise his head and one foot, and scratch on the hive a few moments, just as a mouse sounds when gnawing. The skunk then

would stick his nose at the hive entrance, and, I suppose, eat all bees which answered his early call. I drove him away into the sage brush and returned and got my gun and loaded it, as it is an old muzzle-loader. I opened the door, and not over twelve feet away was my morning caller. I set my lamp on the floor so as to get a good clear sight and fired. It took off his head; it was done so quick that he left no apologies. In the morning I found he had visited eight hives. I then set a coyote-trap and in a couple of nights caught another. I then put around my apiary a five-foot chicken-wire, and yet the skunks would get in by digging under, so I had to fasten the wire net down with spikes, since which I have not been bothered.

Hudson, Wyo.

Geo. E. B.

"Sweet but Pow'ful Sticky."

I note the reply of P. C. Chadwick, page 184, to A. F. Bonney, defending the mail clerks in their handling of honey in the mails. Mr. Chadwick is right—emphatically so. All honey, especially comb honey, shipped by parcel post, should be plainly labeled to show contents, and marked "outside mail." It will then be handled outside of the sacks, and, if properly packed, will arrive at its destination in good order. During the past winter I have handled two packages of comb honey that were in extremely bad order. Not only were the honey-packages in bad order, but everything else in the sacks was covered with honey—a sweet mess, but "pow'ful" sticky. One of the packages was about a dozen sections in a pasteboard box, nothing to show on the wrapper what the contents were, nor even that they were fragile. The other was a few combs in a tin cracker-box along with some dry goods—dry at one time, but not when I saw them—nothing to show on this wrapper either.

Such cases as these are what bring the parcel post into disrepute, and may cause the shipping of honey by parcel post to be forbidden by the Postoffice Department before we have had a fair chance to try it out.

When shipping honey by parcel post, pack it in a container that will be honey-tight under ordinary circumstances. Label it "Honey," and endorse on the wrapper, "To be handled outside of sack," or say "Honey, Outside Mail." The boys will know what to do with it, and 99 times out of 100 it will go thru all right. If in doubt as to whether it is properly packed, ask your postmaster about it.

I have put in ten years "on the rails," and am still at it on the Lincoln & Billings W. D., but find time to handle about 40 colonies during my lay-off periods.

Huntley, Mont.

Frank E. Clift.

How would it be if we had a label contest? I think it would be interesting to see the ideas of the beekeepers about honey-labels.

Chico, Cal.

R. Deimer.

Two New Ways of Introducing Queens.

Last season I used two plans of queen introduction that to me are new. Both plans have proven highly successful and satisfactory.

Of course my queens are clipped. When a swarm issues, the queen is caged; and if she is one that I want to supersede, I simply kill her and put another in the cage, lay it at the hive entrance, and, when the swarm returns, and about one-third of the bees have entered the hive, I liberate the new queen and let her run in with the swarm, and all is well.

When I have a queen in any hive that I wish to supersede I set the hive to one side and put an empty one on the same stand; then I take the combs from the old hive, one at a time, looking them over carefully; and when I find the queen I kill her and throw her away some distance so that the bees will not find her. Then I shake all the bees off the combs in front of the empty hive, which I have previously filled with empty combs. I also jar all of the bees from the old hive and carry it to the other side of the yard, after putting back into it the old combs and brood. Then I liberate my new queen on the combs of hatching brood, close the entrance, and leave the hive thus for one hour. At the end of this time all the bees in the new hive will be aware of the loss of their brood and queen, and will be running over the front and sides of their hive, in their eagerness to find a queen. I then remove this hive from the old stand and set the old hive and brood back again, open the entrance, remove the combs from the empty hive and shake all the bees in front of their old hive, just as they were in the first place. When they go in and find their brood, they seem to think that their queen is the old queen. It is not necessary to open the hive before the next two or three days after. The queen is introduced all right and they should be left alone.

Before liberating the new queen on the combs of brood I destroy all queen-cells, if there are any; and if the weather is cool at the time, I carry the hive in the house to prevent any possibility of chilling brood.

Union Center, Wis. Elias Fox.

Red-clover Bees.

I should like three-banded Italians that work on the red-clover bloom as those are the kind raised here. Please let me hear where I can get them.

Mrs. Mary E. Adams.

Ransomville, N. Y., June 12.

[There are some strains of Italian bees that will work on red clover; but as a general thing the conditions have to be somewhat favorable, so far as the season is concerned. When there is a drouth on, or when there has been backward or chilly weather, the corolla tubes of the red clover are enough shorter so that the bees can reach the nectar. When the clover is developed so that

the blossoms are large, the ordinary Italian bees do not get very much of the nectar; still, there are some strains that have a little longer tongue. See our advertising columns. —Ed.]

The El Paso County Beekeepers Organize.

The beekeepers of El Paso County, Texas, seeing the need of greater co-operation, met at Ysleta, Texas, on June 10 for the purpose of organizing. A very successful meeting was held, and the El Paso County Beekeepers' Association organized with Mr. W. J. Stahmann acting as temporary chairman, and F. C. Belt as temporary secretary.

Following a discussion of the need of such an organization, the following officers were elected: W. J. Stahmann, President; J. G. Saurenmann, Vice-president; F. C. Belt, Treasurer; Albert S. Blanks, Secretary.

A constitution and by-laws were adopted, and the resolution was passed that F. C. Belt be recommended to the State Entomologist as bee inspector.

Clint, Texas. Albert S. Blanks, Sec.

Sacramento Valley Beekeepers Organize.

A few of the beekeepers of this section met on the evening of June 7 and organized an association to be known as The Sacramento Valley Beekeepers' Association, with A. W. Morgue, of Durham, as President; J. A. Williams, Darham, Vice-president; F. M. Washburn, Chico, Secretary.

F. M. Washburn, Sec.
Chico, Cal., June 16.

Sounds Good for the Breeders.

I have bought queen-bees from several western breeders, one eastern, and one southern, and in every case have bought the untested queens with entirely satisfactory results. Every queen, I think, was purely mated. One was dead and one was a cripple when received, but these were replaced at once by the breeders.

Edgewood, March 20. W. A. Gridley.

Barbed Wire for Reinforced Concrete Hive Bottom.

Referring to the excellent plan of Mr. E. A. Harris on page 629, August 15, 1914, I beg to offer the suggestion that barb wire be used for the reinforcement. The barbs keep the wire from the surface, and the advantage of barb wire over smooth wire as a reinforcing medium is apparent.

San Juan, P. R. F. E. Hartwell.

Can you tell me of a better way than scraping to clean supers and fixtures? I use the Danzenbaker bodies and supers.

Ralph P. Smith.

New Garden, Pa., June 22.

[There is no better way to free supers from bee-glue than to immerse them in boiling water with a little lye so as to cut and remove the glue. You could use gasoline or alcohol, but that would be too expensive. —Ed.]

Dwarf Worker Bee from Small Cells.

I am mailing you a very small worker-bee. I have only once before in my life seen another like it. I have found that they hatch from a smaller cell than the regular size. The bees in drawing out their comb from a one-inch starter will start at several places in the length of the frame; and when they come together they have room for only a very small worker-cell.

This is my idea of the cause of the small bee I am sending you; but as your experience is much broader you probably might have a different cause for the dwarf bee. For the novelty of the thing I should certainly like to have a colony of these bees; but the only way I think they could be raised would be to make a smaller size of worker foundation. However, you may have a better suggestion to offer.

Lancaster, Pa., June 19. W. D. Sellers.

This was referred to Dr. E. F. Phillips, of the Bureau of Entomology, who replies:

[This bee proves to be a worker honeybee, apparently normal in every respect except size. Under certain abnormal conditions such dwarf bees may be raised in a bee colony. In the article entitled "Honeycomb" in A B C and X Y Z of Bee Culture, it is stated that "By making the cells smaller than ordinary we get small bees with very little trouble."]

Several years ago I experimented with the production of drones in worker-cells, and, as is well known, they are greatly reduced in size.]

A Pollen Ration Necessary.

1. Can bees raise brood that will produce perfect bees without pollen of any kind, providing they have all the sugar syrup and water they need?

2. If bees are fed sugar syrup when raising queens for the market, and they depend entirely upon this source of food supply, would it not be natural for the bees of these queens to depend upon the same source of food supply?

3. What object has a bee in life?

Meadville, Pa. A. B. McGuire.

[1. Bees cannot raise brood without pollen of some sort. Natural pollen from the field is a great deal better than the artificial pollen in the form of meal or flour.

2. No, this would not follow. The feeding of sugar syrup only takes the place of a natural light honey-flow, because the bees cannot prepare the food for the young queens unless they have honey and pollen, or syrup and pollen. Either one of them will answer an equally good purpose, altho the honey would, of course, be a little better.

3. We do not know that we quite understand your question. We may say in a general way that the bee has no thought of its owner. It simply has an instinct that impels it to gather nectar and pollen to take care of its young and to carry its colony

thru a period of the year when there is no supply of food from natural sources.—Ed.]

Are Bees Taxable Property?

When the assessor was around last fall I gave in my 50 colonies of bees, which was put down as personal assessment, with the understanding that I would not be taxed for them unless it is the custom or law of this state to tax bees; but now they have the bill against me, or it is included in with the other taxes. The commissioners meet on July 6. I want to go before them and try to get the bee part of the tax cut out; for if I start to paying tax on bees I shall have to keep it up as well as other beemen.

Of course, if it is just, and the custom to pay tax on bees or the bee industry, I would not kick on the tax (\$1.49 county and 32 1-3 cts. state). I understand the poultry business is not taxed here, and I believe that is one reason why bees should not be taxed.

H. C. Davis.

Upper Marlboro, Md., June 29.

[Bees are taxable property in most if not in every state in the Union, and we know of no reason why they should not be put on the taxable list like other property. If they are not taxable property they have less standing in law. You had better let the matter stand as it is. We know of no reason why poultry should not be taxed like other property. If chickens are exempt, bees should be also.—Ed.]

Sweet Clover in Pastures.

Mr. Crane is on the right track, page 836, Oct. 15, when he says sweet clover would be more helpful to beekeepers if grown in pastures than that grown for hay. Every sweet-clover grower I know cuts the crop twice a year just as the blossoms commence to be valuable for bee pasturage.

To get the best results, from the dollar-and-cents standpoint, sow the seed any time, then keep all weeds mowed down for the first six months. The second year as the crop comes up from the previous year's roots it should be let alone until some of the first seed is ripe. At this time half of the field should be cut for hay, and the hay stacked half and half, every other load with alfalfa, or clover, or timothy. This makes the hay better, and leaves the other half of the field for seed and bee pasture; and, besides, the bees will get nearly all the honey from the first half of the field cut, as it will come up again and blossom, and produce honey until freezing weather.

E. W. Benson.

Beatrice, Neb.

Has No Hands.

I have only a thumb—no hands, and I can manage six or seven swarms very nicely with the aid of my wife.

William Gardner.

Mechanicsville, N. Y., Dec. 11.

A. I. Root

OUR HOMES

Editor

Behold the Lamb of God, which taketh away the sin of the world.—JOHN 1:29.

He is brought as a lamb to the slaughter, and as a sheep before her shearers is dumb, so he openeth not his mouth.—ISAIAH 53:7.

Thinkest thou that I cannot now pray to my Father, and he shall presently give me more than twelve legions of angels?—MATT. 26:53.

The first of our texts has been one of my favorite ones ever since I began reading God's holy word understandingly. Who was it that called Jesus the Lamb of God? It was poor John who, later on, was persecuted and *put to death* "for righteousness' sake." The Lamb of God! what an expression! When God saw fit to send a messenger to this wicked world, what sort of messenger would humanity naturally suppose he would send? John terms him the "Lamb of God." A little lamb is about the meekest and most inoffensive of all God's creation. It has been the emblem of innocence ever since the world began. The lamb does not fight. It does not endanger anybody nor anything. When we speak of a disposition that is lamblike it is paying about as high a compliment as we can pay to a human being. Jesus was ushered into the world with this lamblike disposition—the disposition to be unselfish and to do good, in contrast to average humanity.

Just now it seems that thruout the whole wide world there is a division of sentiment. We have had it here on the pages of GLEANINGS. Quite a number of writers all the way from Sheldon (the author of *In His Steps*) down to others not so well known have counseled "non-resistance;" and I grant you there seems to be a tendency to go to extremes either way.

Just as I write, on the third day of July, there is a strong prospect of a war with Mexico; and the question is constantly coming up, "What would Jesus do?" A few weeks ago I copied a tract entitled "War on Christian Principles," and it brought forth much comment. We are just about printing 2000 more for the good lady who sent a sample—see page 460, June 1. Suppose we study the character of Jesus a little in order to decide better what he *would* do. A nephew of mine away out in Arizona takes me to task and quotes scripture to show that I should not be undecided. He says, "Not by might nor by power, but by my Spirit, saith the Lord of hosts." He quotes again, "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you." Just once, if I am correct, Jesus not only reprov-

and rebuked *but drove* out wicked men. In this one instance the lamblike demeanor seems to have been changed to one of authority. He overturned the tables of the money changers, and said, "Take these things hence." He then added, "Make not my Father's house a house of merchandise. My house shall be called the house of prayer; but ye have made it a den of thieves." Strangely enough, those wicked men hustled out with their trade and traffic when he showed he could present them something besides a lamblike demeanor. Now, there is one other instance that is not exactly parallel, but I often think of it. It illustrates that, beneath that lamblike exterior, there was a hidden power that not only *defied wicked humanity*, but spoke peace even to the winds and waves. No wonder that his followers were awed and astonished as they said, "What manner of man is this that even the *winds* and the *sea* obey him?"

The question continually comes up, and is sent in to me, "Would Jesus, if he were here, indorse enforcement of law?" I think he would. Did he not say "I came not to bring peace but a sword"? And at another time he said, "I came not to destroy the law, but to fulfill." A. F. Foster said on page 377, May 1, that insane people would have to be taken care of; and I think abundant experience has shown that policemen, magistrates, etc., are needed in every part of the world. In some towns where there are no saloons one policeman might take charge of quite a large number of people; but for all that, it seems that one or more police are still needed. In our lynchings where mob rule takes the place of law, we have not only *one* crazy man, but it seems crowds get together where it would seem that a hundred or even more have gone insane and have to be restrained. What is our nation coming to if a crazy mob, and often a drunken mob, takes law into its own hands? In such cases it seems to me that even the Lamb of God which taketh away the sin of the world would authorize an armed force to insist on strict obedience to the laws of the land and on giving every accused person a chance for a fair trial. I saw a statement recently that quite a number who had lost their lives by lynching were proved afterward to have been *entirely innocent*; and this came about because the poor victim had no chance to explain things and defend himself. May God help us to do away with lynching, not only in the far South, but everywhere else.

The last one of our texts makes reference

to the sin of the world. Well, the most striking illustration of the depravity of the present age I clip from the *Independent*. I have put on a head of my own, as you will notice.

COSTS \$10,500,000; WAS SIX YEARS IN BUILDING;
1000 MFN WERE ABOARD OF HER, AND SUNK
IN SIX MINUTES.

Six years ago the British determined to build a battle-cruiser that should be bigger and swifter and stronger than any afloat. Hundreds of skilled workmen labored for years in her construction. Ten and a half million dollars were spent on her. She was protected with armor plate of the hardest steel nine inches thick. She was propelled by the most efficient of steam-engines, the turbine. She was armed with ten 13.5-inch guns, which could discharge a 1400 pound projectile every thirty seconds; also with sixteen 4-inch guns, twelve 6-inch guns, and two torpedo tubes. The British, properly proud of her, named her after their queen. A thousand men were put aboard of her, and she was sent into action on the last day of May.

The German warships opened fire, and within six minutes the "Queen Mary" was torn asunder by a terrific explosion, and sunk.

I suppose this great warship was paid for and built by taxing good honest hard-working people. To say nothing of the waste of life, think of the property and the hard work that were wasted in *just six minutes*. Will the great wide world learn a lesson from the above event? or will the nations keep on building warships on such a scale, or even a larger scale, to meet a like catastrophe and disaster? Who can answer? Will any power on earth put a stop to it unless it is the Lamb of God that taketh away the sin of the world? If he should command the nations to cease such awful and wicked waste, would they obey him as did the money changers in the temple? I read somewhere that somebody suggested that these war times have demonstrated the failure of religion; but a bystander quickly replied, "Not so, my friend, for religion has not *even been tried*."

And now in closing this Home paper I want to give you the contents of a tract just sent me by the good woman who gave us "War on Christian Principles." On the first page of this tract there is an excellent picture of a shoemaker working with his last. By the way, it used to be the fashion some fifty years ago for shoemakers to entertain a lot of loafers, and too often they wasted their time in denouncing Christianity and in holding up to view the faults of Christian people. It seems that a Bible-reader went into the shop, and the skeptical shoemaker commenced on him, with the result as follows:

THE SKEPTICAL SHOEMAKER.

"I have read," said the shoemaker, "a good deal about the heathen gods, and I believe the account of Christ is taken from some of the heathen writings or other."

"Will you abide by your own decision on two questions which I will put to you?" said the Bible-reader. "If so, I will freely do the same; I will abide by your own answers. By doing so we shall save much time and arrive more quickly at the truth."

"Well," said he, "out with it, and let us see if I can answer; there are but few things but what I can say something about."

"Well, my friend," replied the reader, "my first question is: Suppose all men were Christians, according to the account given to us in the Gospels concerning Christ; what would be the state of society?"

He remained silent for some time, in deep thought, and then was constrained to say, "Well, if all men were really Christians in practice as well as theory, of course we should be a happy brotherhood indeed."

"I promised you," said the reader, "that I would abide by your answers: will you do the same?"

"Oh, yes!" he readily replied; "no man can deny the goodness of the system in practice. But now for the other question; perhaps I shall get on better with that. You have got a chalk this time against me."

"Well, my next question is this: Suppose all men were infidels; what then would be the state of London and the world?"

He seemed still more perplexed, and remained a long time silent. At length he said, "You certainly have beaten me, for I never before saw the two effects upon society. I now see that where the Christian builds up the infidel pulls down. I thank you. I shall think of what has passed this afternoon."

The sequel was that he was fully persuaded in his own mind to give up his infidel companions and follow the Lord Jesus Christ. But the change did not stop here. When first the reader called he found him sitting on an old dirty chair, with a number of half-starved children in rags on the floor around him, neglected and uncared for; now they have removed to a better home in a cleaner street. Within all is cheerful and happy. The father, no longer faithless, delights in the company of his wife and children, all of whom are neatly dressed; and his chief happiness is to read and speak of the things which belong to their everlasting peace.

AMERICAN TRACT SOCIETY,

150 Nassau St., New York.

There are several points in the above that come home to me with considerable force. First, the Bible-reader did not propose to argue the matter; and I have often thought that it is a waste of time as well as a waste of breath to undertake to argue with one who opposes Christianity and the Bible. Second, the Bible-reader tells the shoemaker he can be his own judge and jury, and that he, the Bible-reader, will agree with his decision. The shoemaker answered with considerable confidence. He had had a lot of practice in defending infidelity. The Bible-reader's reply is the same as every sane man or woman will be obliged to give. He says, "If all men were all *really* Christians." Our friend the shoemaker had received a stunner the first clip; but he recovered a little, and thought he could do better next time. The poor foolish man! what *would* be the condition of London and all the world if we were all infidels?

Now for the winding-up. The effect of those few kind words, inspired by the Holy Spirit, worked a transformation in that dirty, dusty shoeshop; and, what is of far more importance, the transformation was also in the shoemaker's home. You need not say the above is fiction, for there is not a town or neighborhood in the whole United States that will not furnish something parallel. Billy Sunday's faithful and earnest labors are doing just what was done for that poor shoemaker in thousands upon thousands of homes while I write. The work in Kansas in some respects, we are told, outstripped his former record. It is the outcome of a faithful holding-up before a sin-cursed world "the Lamb of God that taketh away the sin of the world."

Somebody, I do not know who, has been kind enough to mail me a postal card with the following matter printed on it. It needs no explanation.

"Es fer war, I call it murder."—*James Russell Lowell.*

"Amidst the thunders of Sinai God declared, 'Thou shalt not kill.'"—*Charles Sumner in "True Grandeur of Nations," Lee and Shepard.*

By all means "raise your boy to be a soldier," but have him enlist for the "higher soldiership." Show him the difference between "carnal warfare" and the "good fight" which some minds fail to distinguish.—*A Wellwisher.*

Ponder well the contrast between the bloody method of almost Indian-extirmination as pursued by

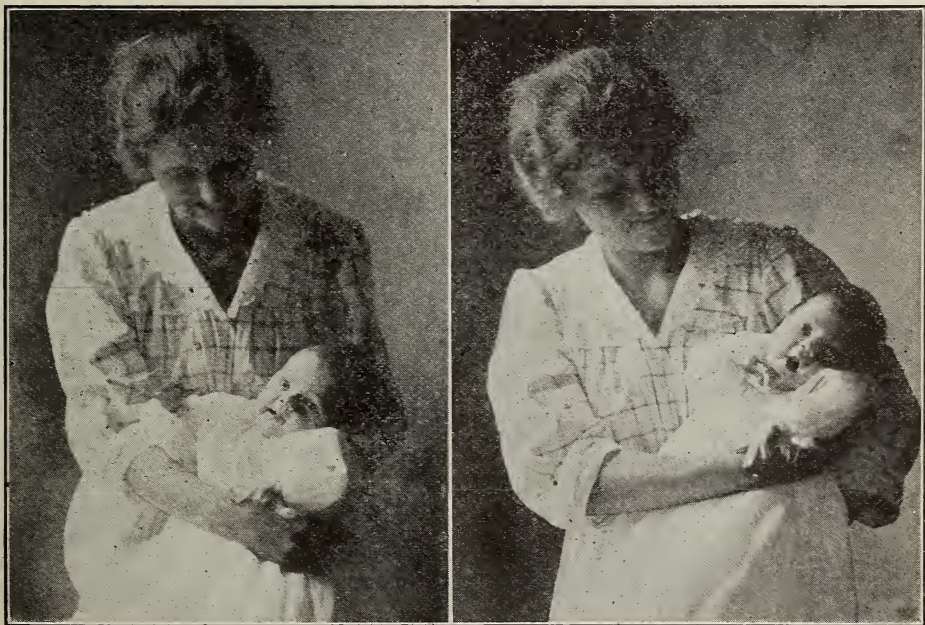
some early colonists, and the holy experiment of brotherly love which that old hero William Penn had the courage to try even with savages.—*A Freelande.*

Wisdom is better than weapons of war.—*ECCLE. 9:18.*

THE GREAT-GRANDDAUGHTER, THE LADY EGLINTINE CHICKENS, AND THAT NEW GARDEN CULTIVATOR.

It has been one of the great pleasures of my life to see things grow. I think I might safely say that for 70 years or more I have almost invariably looked over something every morning to see how much growth it has made during the night; and I examine again several times during the day to watch the gradual growth and improvement; and especially do I like to see seeds push thru the soil out into daylight; and it rejoices my heart to see *boys and girls* grow, not only in physical stature, but, more than all, in that rugged pathway from earth and earthly things toward heaven and heavenly things. Some years ago Mrs. Root made the remark, in speaking of Huber, our last-born boy, "We shall probably not live long enough to see him married."

Well, thru the mercies of a kind Providence we have lived not only to see him married, but to see him the father of a bright little girl who visits her grandmother almost every day when we are here in our northern home. And we have lived to see one of the grandchildren married, and who



The great-granddaughter and her mother when the baby was only 18 days old.

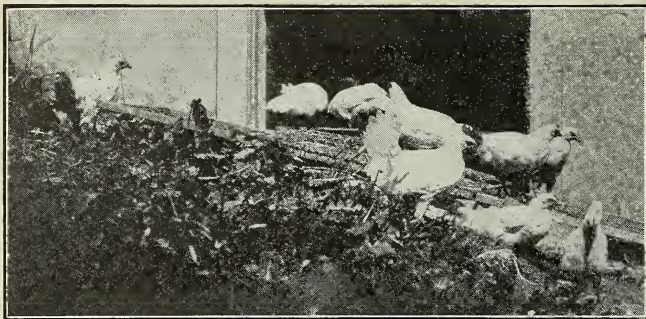


Fig. 2.—The whole flock of 9 chicks, 3 of them 10 weeks old and 6 of them about 7 weeks old.

now has a little girl "of his very own." And it affords me wonderful pleasure—in fact, a thrill of joy and thanksgiving, to be able to present to the readers of GLEANINGS the happy mother and the bright little baby with that wondrous smile that she gave her friends when just 18 days old. I think some good woman called that first smile that the baby gives her friends a "three-cornered smile." Just notice that sweet little mouth opened enough to indicate that she too is feeling happy and thankful to get just a brief glimpse of this great and wonderful world and all the rest of the attendant vast universe.* Oh! what is a home without a baby? May I digress just a little right here?

I once knew a beautiful woman. She married a bright and educated man; and as the years passed by he wanted a baby, one or more of them, in his household. Then there was a disagreement in the matter. If I am correct a divorce resulted. She gave her reasons, so far as I can recollect, something like this:

"My good sir, if you thought when you married me that I was going to be mother to a lot of babies, I want to tell you that you are greatly mistaken."

She declined the office of motherhood, probably because of its cares and burdens. I have heard people talk about living for self, without care or regard or feeling of responsibility for anybody else or for coming generations after them.

*A BRIEF SKETCH OF THE ANCESTRY OF THE BABY IN THE PICTURE.

I was born Dec. 9, 1839. Mrs. Root and I were married Sept. 29, 1861. Our first-born daughter, Mrs. Maud Calvert, was born April 16, 1865, the day after the death of Abraham Lincoln. Mr. and Mrs. Calvert were married Sept. 1, 1885. Their oldest child, Howard R. Calvert, was born Nov. 13, 1891, and was married June 29, 1915. The baby in the picture was born May 21, 1916.

Thru a kind and merciful Providence I am able to say today, June 26, 1916, there has been no death among the children, grandchildren, or great-grandchildren up to date.

Let us now talk about chickens a little.

In our Home paper for May I told you about Lady Eglintine and the nine chicks, and their successful trip to Ohio when part of them were only a week old. I am glad to tell you that not a chick has been lost. In pictures 1, 2, 3, 4, I give you a glimpse of them when the oldest were about ten weeks old. The young rooster in No. 1 has been giving

us a delightful little crow every morning for two or three weeks. Nos. 3 and 4 give you a picture of our poultry-yard; and No. 5 is a picture of myself running that new cultivator. When Huber took the picture No. 4 I supposed I was all out of sight; but he played a trick on me. I did not know I was going to be taken, so I neglected to straighten up, and there you have got me stoop-shouldered. In No. 5 I straightened up a little better. To tell the truth, I never realize that I am getting to be stoop-shouldered (or in danger of becoming so) unless somebody takes a picture of me unawares. Well, now about that poultry-yard.

We have only a limited amount of space around our home in Medina, and I wanted to give the 9 chicks a place for exercise without encroaching on my garden. In order to keep off the west and north winds, years ago I planted a line of evergreens about eight feet apart; and the ground on each side of these evergreens is no good for gardening as a matter of course; so I put

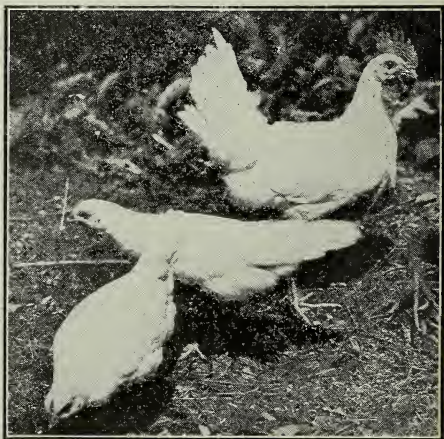


Fig. 1.—Lady Eglintine's chicks when the little rooster was about 10 weeks old.

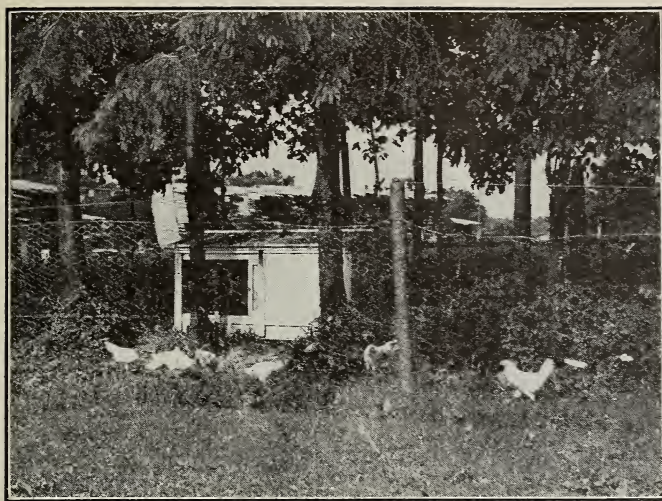


FIG. 3.—The poultry-yard and the Philo coop under the evergreens.

up some netting and made a yard for them about 20 feet wide and toward 100 feet long.

The poultry-house you will see in Nos. 3 and 4, which is one that Huber bought of Philo. It was made particularly to keep a dozen hens and never let them out at all. It is very ingenious and pretty; but as I want my chickens to get out and in the yard whenever it is daylight, I pulled out

rains. Well, the thing worked completely so far. If the sparrows should learn to get into the tunnel, when they wanted to get out they would fly up against the poultry-netting, for there is poultry-netting on the roof as well as on the sides; and when it does not rain a part of the roof is raised up.

Now, there is another thing that pleases me very much about my poultry-yard. Mrs.

a pane of glass to give them a doorway. But a great lot of sparrows soon found this opening and learned to go in and out. I suppose you know my way of feeding chickens is to leave the feed plainly before them all the time. Well, the sparrows were getting to be too much of an expense, and therefore I put the pane of glass back again and taught the chicks to go out and in thru a tunnel under the sill of the house. It stands on a little bank so that this tunnel will not catch or hold water when it

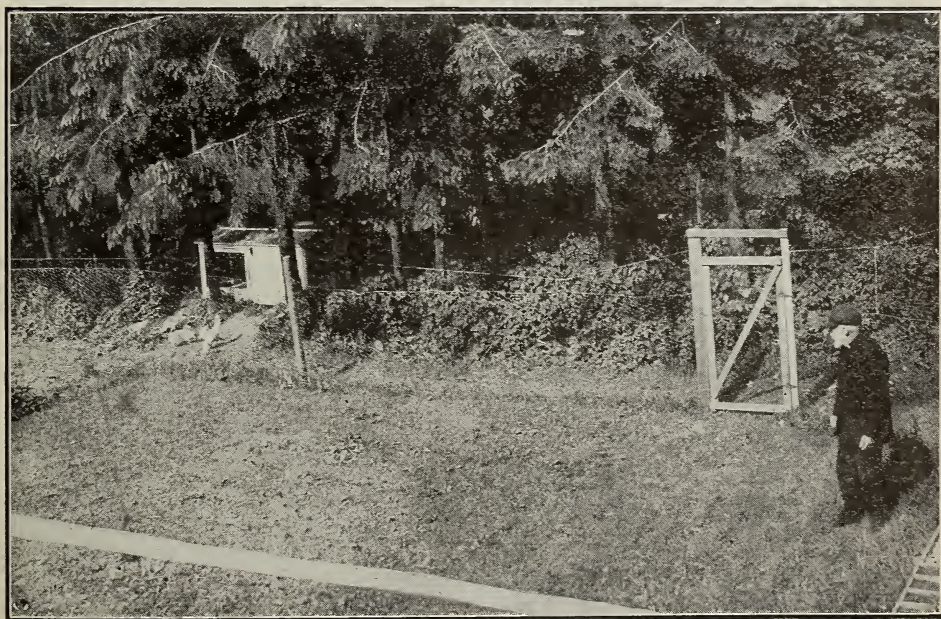


FIG. 4.—The poultry-yard with a glimpse of Mrs. Root's back-yard lawn.

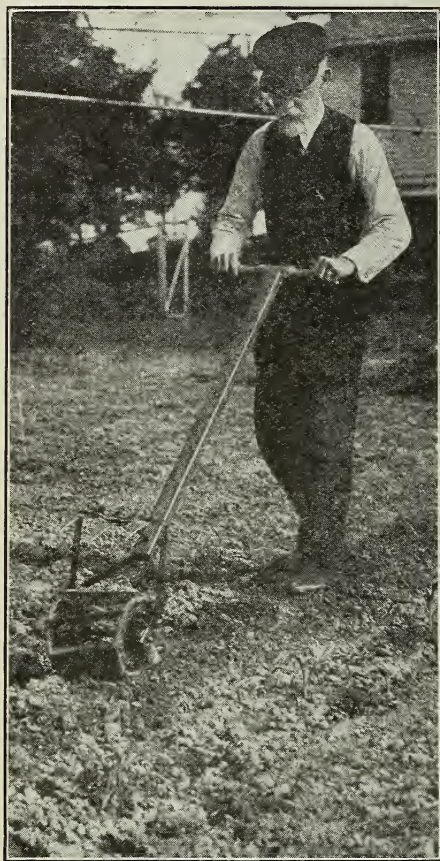


FIG. 5.—The Barker cultivator in the back-yard garden.

Root suggested having it run up to the pantry window so she could toss out to the chickens anything she did not want in cooking or in preparing our meals. Picture No. 1 shows the whole tribe up near the pantry window. The opening shown in No. 2 goes into the basement where I take my noonday nap; and whenever I open my eyes after a refreshing sleep my beautiful little flock of chicks are sure to be first before the window for me to talk to them when I awake.

By the way, friends, don't you think that that is quite a pretty poultry-yard as shown in Nos. 3 and 4? No. 4 shows something else. In our new home we have a lawn out in front of the house; and Mrs. Root petitioned for a lawn in the back yard also. I told her it was the best ground we had on the premises, and I did not want to spare it, and we had some little disagreement about it. But one day I happened to think something like this: Suppose the dear woman should be taken away, and I should

look back and remember that I objected to giving her just a little bit of green lawn in the back yard, where she spent so much time hanging out her clothes and doing other things to keep our premises neat and tidy. Then I went straightway and got a professional lawn-maker to level off the ground and sow the proper kind of seed; and now we have a lawn as you see it, and a man comes around and mows it once a week. You might think that the white mark in the lower edge of the picture was a cement walk out to the clothes-line reel; but it is really a glimpse of the galvanized pipe that sprinkles the garden and the back-yard lawn. It has not been used this year so far, for nature has done all the sprinkling.

Picture No. 5 gives you a glimpse of this same sprinkler and also a glimpse of our Medina clay soil. When the ground is just right after a rain, this little machine makes about the best dust-mulcher around the plant, and does it at less expense than any other tool I have ever gotten hold of. On top of the cultivator, if you look carefully you will see the three keen steel curved blades I have spoken of. It is a good plan to turn the cultivator over and use these first and then finish with the mulching attachment. As the two oldest pullets I have mentioned are today, June 24, about 12 weeks old, I shall be watching for the first egg, *possibly* in July, but probably not till August or some time later. In picture No. 2 you get a glimpse of the whole flock looking thru the basement window to see if I have woken up yet. In fact, they went down thru the window to make me a visit until I put some poultry-netting across to keep them out.

Oh, yes! here is another picture of the Eglintine chicks, after all. It was taken down in our Florida home just before I sent them north by express. They are just in front of the pineapples that were planted partly in the shade of that rubber-tree I have mentioned. Three of them were four weeks old, and the other six were only one week old. There were two difficulties in regard to the shipment. Day-old chicks, of course, go long distances safely; but with *week-old* chicks it is a little different. They must not only be fed and watered, but they must be kept warm. The number was almost too small to keep up the needed temperature in that thin light market-basket; so I put a wooden division in the middle of the basket, and this inside sleeping-room, as we might call it, was lined with a thin cushion filled with cotton batting. On their long trip there was liable to be considerable change of temperature, and therefore I



The nine chicks and their Rhode Island Red mother just before I put them in the basket for their long trip north.

arranged so the whole nine could crowd into the sleeping-room when they were too cold. But should the weather be warm they could stay outside with nothing but poultry-netting overhead. The feed and water were

in this outside apartment or "dining-room." The fact that they are still all alive, and spry as crickets, seems to indicate that they are at least a hardy strain of White Leg-horns.

HIGH-PRESSURE GARDENING

SWEET CLOVER DOING MISSIONARY WORK.

I think something has already been made mention of in our columns in regard to transforming the worthless hills of Kentucky into "a land flowing with milk and honey." Here is some further evidence in regard to it which I clip from the *National Stockman and Farmer*:

A PLANT IN PLACE.

Those who live on rich land and emit occasional sarcasms about sweet clover should take a little trip to Pendleton County, Kentucky. Twenty years ago that county was in a bad way. The land was badly eroded and gullied. Land was cheap because it produced little. Then somebody started sweet clover, a plant with a mission on barren land if not elsewhere. Today the hills are productive, the gullies are gone or at least are out of sight. Sweet clover and alfalfa, which followed it, are the foundation of a big dairy industry and a considerable business in seeds and honey. Trying to produce the wrong things—grain and tobacco—almost ruined Pendleton County. A plant which is called a weed and may be a weed in some parts of the country has redeemed it. There are communities here and there in this broad land which would profit by sending a delegation to Pendleton to absorb some facts and shuck off some prejudices.

There is just one thing in the above that I am not ready to subscribe to. Altho the

writer does not say so, there is an implication that sweet clover may be a weed in some parts of the country. Somebody has said—I do not know who—that not one of the legumes can ever be called a weed anywhere or under any circumstances. If sweet clover should happen to get in somewhere where it is not wanted, just cut it and feed it to the stock, and the stubble that is left has already done valuable work in improving the soil so you can grow alfalfa or almost anything else. Notice what is said on next page about growing nice potatoes on our sterile clay soil on a railroad embankment after sweet clover had made it possible.

SWEET CLOVER AND ALFALFA.

Prof. Bowers, of the Iowa State Experiment Station, compares the two clovers as follows, which we clip from the *Rural New-Yorker*:

SWEET CLOVER COMPARED WITH ALFALFA.

Sweet clover and alfalfa are very similar plants when young, and at this time they are difficult to determine from each other unless one is familiar with their distinguishing characteristics. Sweet clover is bitter to the taste, while alfalfa is not; the

leaves of sweet clover are broader than those of alfalfa and are smooth on the under surface, while the leaves of alfalfa are hairy on the under surface. After blooming, sweet clover is readily distinguished from alfalfa by the white or yellow flowers of the former in contrast to the purplish-colored flowers of alfalfa.

Sweet clover usually grows more dense than alfalfa, and is coarser. It will thrive on soils where alfalfa will not, and has a wider range of climatic adaptation. Sweet-clover roots do not as a rule penetrate as deep into the underground as alfalfa roots; but the root development of the former is much greater, and these large succulent roots decay more rapidly and give less trouble in plowing. Sweet clover is more succulent than alfalfa, and is thus more difficult to cure for hay than the latter. Cumarin is found in sweet clover, but does not occur in alfalfa. Alfalfa is a perennial in duration, while sweet clover is only a biennial.

Sweet clover superior to alfalfa—easier to get a stand; fits better into rotations; better for cattle, sheep, and bee pasture; rarely causes bloat; furnishes earlier spring pasture; roots decay more rapidly; will grow on poorer soils; will resist extreme drouth better; will grow on soils too wet for alfalfa; will grow on soils too hard for alfalfa; will grow later in the fall; practically free from insect pests and plant diseases; produces less washing effect on animals, and is a better green-manure crop.

Alfalfa superior—better hay; better pasture for hogs; more palatable at first; does not become so coarse and woody; is a perennial; has less hard seed, and is less difficult to cure for hay.

The protein analysis of the fresh forages shows in favor of sweet clover, but it contains a smaller percentage of all the other nutrients. In case of the hay the analysis shows that sweet clover possesses a higher per cent of protein and fat, while alfalfa contains slightly more ash and carbohydrates. According then to the nutritive coefficients sweet-clover hay surpasses alfalfa hay, and fresh sweet clover excels fresh alfalfa in protein content.

Iowa Experiment Station. W. E. BOWERS.

I think I have before mentioned that I have for forty years or more championed sweet clover. In view of the above it is a little refreshing to see now every farm paper more or less interested in testing sweet clover. And just notice the concluding sentence in the above extract from one of the foremost experiment stations of our land.

Now just a word in regard to the ability of sweet clover to grow anywhere. In 1890 a railway was cut thru a dry clayey hill close to our factory. The dirt piled up was pure yellow clay, and the clay on top of the pile, that came from perhaps ten feet below the original surface, was spread out over several square rods. For some little time not a weed of any sort made its appearance. The ground was so hard and yellow that it was no good, evidently, for any plant. Finally sweet clover gradually got in, and soon grew with rank luxuriance. One spring, when it was up about two feet high, for experiment I had it plowed under and planted to potatoes. People laughed at me for thinking I could grow potatoes on that yellow clay bank without any manure.

To the surprise of everybody, and somewhat to my surprise, I got a fair yield of smooth potatoes. Without the "green manuring" of sweet clover I should not have had a potato, and perhaps hardly a green leaf.

EARS, HIGHER UP THAN A MAN CAN REACH,
AND THREE OR FOUR EARS ON A STALK.

On page 559, July 1, Mr. C. L. Harrison speaks of some ears of corn higher than he can reach. Well, on June 24, just 22 days later, the man who has charge of my Florida garden writes as follows:

The corn is doing nicely. Each stalk has from three to four ears on it. I think we shall have a fine lot of corn to house. The velvet beans are running up on the corn, but that does not seem to hurt the corn. WESLEY WELCH.

Bradentown, Fla., June 24.

MULCHING YOUR FRUIT-TREES AND OTHER TRUCK.

Our Ohio Experiment Station at Wooster has a block of fruit-trees mulched clear out around as far as the limbs extend, and kept mulched the year round. The mulch is heavy enough to keep down all the weeds or grass. Well, adjoining this block of trees is another one just like it, only the ground is kept under cultivation. In other respects the treatment of the trees is as nearly alike as possible; but the mulched trees are far ahead, and have been ahead for years in every respect. The difference in vigor of the mulched trees is visible as soon as one gets in sight of the orchard. This matter was brought to mind by the following, which I clip from the *National Stockman and Farmer*:

Another word about mulching. It should be more generally practiced. In driving over the country, enormous quantities of mulching material may be seen here and there—old straw stacks, spoiled hay, weeds, and grass growing in nooks and corners. Why not utilize all of these materials for mulching the strawberries, fruit-trees, brambles, currants, gooseberries, asparagus, tomatoes, celery, and many other horticultural crops? Bear in mind that a heavy mulch conserves moisture better than the most perfect tillage, and that the soil is enriched every time you apply a mulch. There is satisfaction, too, when you are busy harvesting the general farm crops in knowing that the mulched plantations are not being neglected. Try mulching.

It seems to be much the fashion, when you commence making a garden, to make a big bonfire of the trash; but it pains me every time I see it. Everything that can be burned up is valuable for mulch. When I protest they often tell me they want to burn the weeds that may contain seed. My friends, you do not need to worry a bit about weeds and their seed, even docks. Pile them up around your trees; and if the

dock seed or any other kind of seed commences to grow, put on more mulch—old dirty newspapers, or paper that has been wrapped about your meat—anything and everything. When this trash gets well rot-

ted it makes a most excellent fertilizer; and if you should happen to get more around a certain tree than it needs, work it into your garden in place of buying manure. Save the fertility.

TEMPERANCE

PROHIBITION IN KANSAS AND THE FRA MAGAZINE.

In our June 15th issue I spoke of that article from the *Fra* magazine, and copied a sentence in regard to prohibition in Kansas, in which I suggested that the closing of 220 schools in Kansas in 1914 was because of the plan of consolidating rural schools. In a lengthy article in the *New Republic* of June 23 the Governor of Kansas replies in full, and not only corroborates my suggestion, but replies to all the points made in that article. It would seem this man who wrote the article for the *Fra* was employed by the liquor party to hunt up everything he could in the way of statistics that might be construed so as to cast a slur on Kansas. What little truth there was in the statement was so construed as to make it appear derogatory, when the real facts were wholly otherwise. And with it all is a great lot of whole-cloth falsehood. Any one who cares to go all over it can get it in the *New Republic*, Westerville, Ohio.

COMING OVER TO OUR SIDE.

It appears that the proprietor of the *Denver Post* was once against prohibition; but he now comes out announcing his change of mind, and, I hope, change of heart, as will be seen by the following, which I clip from the *New Republic*:

WAS BUM PROPHET; GLAD OF IT.

The terrible things that I predicted did not come with prohibition. It is doing wonders out here. Colorado is happier, wealthier, healthier, wiser, and more prosperous with prohibition. I am glad that my predictions did not come true.—H. H. TAMMEN, Proprietor of the *Denver Post*.

"THE WAY OF THE TRANSGRESSOR IS HARD."

Dear Friend:—I send you a clipping for your temperance department. It shows how we deal with the liquor-sellers in this part of the country. This is only one case of the many that have been convicted and fined lately. I clip it from the *Bystander*, Macomb, Ill.

Macomb, Ill., June 24.

GEO. J. STURM.

County Judge C. I. Imes imposed a heavy sentence on Samuel T. Danley this morning in county court. It will be remembered that Danley was convicted by a jury this week on six counts on the charge of selling intoxicating liquor in anti-saloon territory.

Judge Imes imposed a sentence of 60 days on each of the six counts and \$100 on each of the six counts.

Danley, it is believed, cannot pay the fine; and if this be the case then his imprisonment in the county jail will total 893 days, or over two years and a half.

THE SENTENCE.

In imposing the sentence Judge Imes said:

"You have been indicted, given a fair and impartial trial, found guilty of six violations of the law, after twice having violated the same law. Under statute it becomes my duty as the judge of this court to pronounce sentence upon you under this charge and verdict, and I desire to temper justice with mercy toward you as an erring brother-man, and also do my duty to the community in which you live, and whose peace you have disturbed by repeated violations of the law of this state.

"The unlawful sale of intoxicating liquor is not only a misdemeanor under the law, and wrong, but public sentiment is growing strongly against any use of intoxicants as a beverage; and those who have acquired a habit which demands a use of such beverage should be discouraged in the pursuit of that which increases their desire for strong drink and eventually brings trouble to themselves, their families, and the community in which they live.

"And you must be induced to stop your illegal pursuit for your own good, the good of your customers, and the good of society at large; and you should realize that society demands this, and that society is stronger than you, and will succeed in crushing you if you persist in opposing their wishes.

"The defendant, Samuel Danley, is sentenced to be confined in the county jail of McDonough County, in the state of Illinois, for a term of sixty days on each of the six counts of the indictment upon which he was convicted, the term of confinement on the second count to commence when the term of confinement on the first count ends, and so on till the six terms are served; and that he pay a fine of one hundred dollars on each of the said six counts, and the costs of this suit.

"In default of payment of said fine and costs, the defendant is required to work out the same on the streets and alleys of Macomb, Ill., at the rate of one dollar and a half per day, such work to begin at the end of the last term of confinement as pronounced by this sentence."

How many wise and good judges like the one in the above have we in this land of ours? Long may they live.

REDUCTION IN THE NUMBERS OF MURDERS COMMITTED IN ARIZONA UNDER THE DRY REGIME.

We clip the following from the *American Issue*:

During the past 18 months with prohibition in effect in Arizona, there were six murders in the state. The last six months under the saloon regime there were 30 murders. Had this ratio been kept up under prohibition, there would have been 90 murders the past 18 months instead of six.

DRUNKENNESS BEFORE BIRTH.

In times past much has been said about inheriting an appetite for strong drink; but many physicians, if I am correct, rather doubted it; but it is very probable that the common soothing syrups—Mrs. Winslow's, for instance—all contain both alcohol and morphine. These often have much to do in giving persons a tendency toward the drink habit from what they have received when babies in the way of medicine. In the clipping below is a statement that is really astounding. Just notice the sentence, "The child has been drunk many times before it has been born."

INDUSTRIAL PUBLICATIONS FIGHT LIQUOR TRADE.

An editorial from "Craneing," published by the Crane and Engineering Company, is typical of the outspoken attitude of industry toward drink. In part the editorial says: "The worst effect of alcohol is the result of its use by women while bearing offspring. The child has been drunk many times before it has been born. Scientific men stated in a very positive manner that children generated and born under the influence of liquor frequently do not have an equal chance with better-born children; they are not brought into the world with normal minds. Often the bodies, too, are puny. Men and women who do not wish to be under the curse, till they die, of having borne undersized, shrunken, mentally stunted children, will study up on the effect of alcohol on the cells of the human body."—*Methodist Board of Temperance.*

GROCERIES OR BEER—WHICH WILL DO HUMANITY THE MOST REAL GOOD?

We clip the following from the *American Issue*:

The Minneapolis *Journal* is authority for the statement that the Great Northern Railroad during the last wet year in Itasca County, Minnesota, shipped in 79 tons of beer, and in the first dry year shipped no beer at all, but shipped an increase of 79 tons of groceries.

This causes Louis Albert Banks to remark that "since the scientists tell us you have to drink 31½ tons of beer to get one ton of food, that was some change for one station."

WISE SUGGESTIONS FROM "MRS. HETTIE GREEN."

We are just informed that Mrs. Hettie Green, "the richest woman in the world," as she has been called, is dead. She died at the advanced age of 82. Now, whatever may have been said of her and of her special faculty for "laying up treasures on earth," she has given us some excellent rules for living to a good old age, and preserving the use of her faculties to a remarkable degree thruout a life devoted to making riches multiply. We clip the following from the *Cleveland Plain Dealer*:

HETTY GREEN'S LIFE RULES.

Hetty Green once gave an interviewer the following list of rules which she said were those of success:

Eat only good, wholesome food.
 Don't cheat. You may worry yourself into the grave in remembering your misdeeds.
 Don't envy your neighbors.
 Don't overdress. It makes others jealous.
 Dress warmly. Vanity in cold weather causes many deaths.
 Go to church. The church needs you, and you need the church.
 Don't forget that if your riches have been gained by unfair means the doors of heaven will be bolted against you.
 Be charitable. Don't falsify.
 Take a lot of exercise. Walk whenever you can.
 Obey all God's laws, including the precept: "Give unto Caesar that which is Caesar's and unto God that which is God's."

THE CIGARETTE AND THE TOBACCO HABIT.

I hold in my hand a neat little pamphlet of 76 pages entitled, on the front cover, "The Case against the Little White Slaver." Part 4 is just out, and contains much important matter in regard to tobacco and cigars. From the last page I quote one sentence as follows:

The world of today needs men, not those whose minds and will power have been weakened or destroyed by the desire and craving for alcohol and tobacco, but, instead, men with initiative and vigor, whose mentality is untainted by ruinous habits.

The pamphlet in question can be obtained by addressing Henry Ford, Detroit, Mich.

WORDS ALMOST EXTRAVAGANTLY KIND, AND SOMETHING ELSE.

Dear Mr. Root:—I have sent you some copies, a report, and an almanac which I have preserved until now. I would hardly part with them. They seem to spur me on to more earnest efforts to do the will of our God. I think you will rejoice when you look the books over to learn that there is one more man in the world who is depending entirely on God for all he needs. I like to hunt such people up; and let me say right here I am not trying to flatter, for it is the truth, when I say that many times I have cried when I have read your writings; and when I thank God for blessings received I surely must thank God for A. L. Root. I do not keep bees now. I have taken GLEANINGS from away back in the eighties; and you can guess why—the old story that many before me have said, because of the Home papers.

Chelmsford, Mass.

C. L. AKERSTROM.

The literature referred to in the above is in regard to the "Children's Home" at New Britain, Ct. Years ago we sold and gave away many copies of "Mueller's Life of Trust." The wonderful story of how Geo. Mueller received millions of dollars for his orphanage *solely* in answer to prayer, interested our class in the Medina jail more than any other book. Well, I did not know until just now that a similar work was going on here in America. For further particulars address as above.

There is Money in Our 3-banded Italian Bees

20 Years of Select Breeding Gives Us Queens of Highest Quality

Queens for Honey Production - - Queens of Unusual Vitality

Our select colonies used for breeding purposes, larvæ and select drones are those of the highest standard, the choice of over 1000 hustling, honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus very effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed in cells which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get cells that produce large, long-lived, and hardy queens, which give workers unexcelled as honey-producers. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved.

All orders will be filled promptly by return mail or soon. We have no disease of any kind. Satisfaction and safe arrival we guarantee.

Select untested . . . 65 cts. each or \$60.00 per 100
Untested 50 cts. each or 45.00 per 100

Tested \$1.00 or \$ 90.00 per 100
Select tested 1.25 or 115.00 per 100

All queens are warranted purely mated. Wings clipped free of charge.

Write for descriptive price list.

M. C. Berry & Company Hayneville, Alabama

50c-- Golden and 3-banded Italian Queens--50c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 50 cts.; 100, \$45.00. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. 1 lb. bees, \$1.25; 2 lbs., \$2.00; 1-fr. nucleus, \$1.25; 2-fr., \$2.25. Full colony 8-fr., \$6.00; 10-fr., \$7.00. No queens at these prices.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my test stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller, Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested, \$1.00; 12 for \$10.00; Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

QUEENS!

In the Beginning is where Quality starts

Our breeding stocks, our methods of breeding cannot be surpassed anywhere

If you want to know who we are, read "How to Produce Extracted Honey," also "Modern Queen-rearing," both of which we wrote for The A. I. Root Co., while we were their head apiarist some 12 years ago. Untested queens, \$1.00; tested, \$2.00. Other prices on request.

Geo. W. Phillips, Lebanon, Ohio

ITALIAN QUEENS, NORTHERN BRED

are surely most hardy for Canada and northern States. Try one. Untested, 75 cts.; select tested, \$1.50. List free. Plans "How to Introduce Queens, and Increase," 25 cts.

E. E. MOTT, Glenwood, Mich.

BEE SUPPLIES Send your name for new 1916 catalog.

Dept. T. CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Forehand's Italian Queens

Gentle, good honey-gatherers, bred for business. Their mothers were imported — the best to be had. If you buy once you will buy always. Just look at these prices. Where can you find better?

Untested, . . . July to Oct. 1, one, \$0.50 up to 25.
Select Untested, " " 1, .75; 6, 4.25; 12, 8.00
Tested, . . . " " 1, 1.25; 6, 7.00; 12, 13.00
Select tested, " " 1, 2.00; 6, 11.00; 12, 20.00

If queens are wanted in large quantities send for prices.

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

L. L. Forehand, Fort Deposit, Ala.

Italian Queens

with a Record of 30 Years

Leininger's strain of Italian bees and queens have been carefully bred for 30 years; for gentleness and honey-gathering qualities are unexcelled; 95 per cent pure mating guaranteed. Queens ready June 1. Untested, each, \$1.00; 6, \$5.00; tested, \$1.50; 6, \$8.00.

Fred S. Leininger & Son, Delphos, Ohio

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on 1 to 10 queens, 50 cts. each
 " 11 to 25 queens, 45 cts. each
 " 26 to 100 queens, 40 cts. each
 " 101 to 1000 queens, 38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal. Dadant & Sons. any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8 frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder
 Bellevue, Ohio

QUEENS!

Three-band Italians
 Untested 50 cts. each

The same ones you pay \$1 for, and just like the ones you get for \$1.50. Guaranteed to be as good as money can buy. Every one guaranteed to give perfect satisfaction; safe delivery also guaranteed. Write for prices on lots of 25 and more.

N. Forehand, Ft. Deposit, Ala.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free,
 Queen-breeder

J. P. MOORE,
 Route 1, MORGAN, KY.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

NEW ORANGE-BLOSSOM HONEY.—Two 60-lb cans, \$9.75. Sample bottle by mail, 10 cts.

OTTO LUHDORFF, Visalia, Cal.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order.

DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case, 7 cts. per lb.; also comb honey in 4 1/4 x 1 1/2-inch sections, f. o. b. cars.

JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb.

W. A. LATSHAW Co., Clarion, Mich.

Saw palmetto honey, thick and delicate; case of two 60-lb. cans, \$5.00. Also best seagrave and mangrove honey, 7 cts. in cans or 6 cts. by the bbl. Sample, 10 cts. to be applied on order.

A. E. AULT, Bradentown, Fla.

RASPBERRY HONEY.—Thick, rich, and delicious, put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.

ELMER HUTCHINSON,
Rt. 2, Lake City, Mich.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

WANTED.—White-clover and raspberry extracted honey; also glassed comb honey.

I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—To buy a quantity of dark or amber baking honey. State price, and source gathered from.

A. G. WOODMAN, Grand Rapids, Mich.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY Co., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.

A. L. HEALY, Mayaguez, Porto Rico.

HONEY LABELS.—Most attractive designs. Catalog free.

EASTERN LABEL Co., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels. LIBERTY PUB. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—165-lb. honey-kegs at 55 cts., f. o. b. factory.

N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog.

A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.

WHITE MFG. Co., Greenville, Tex.

The Stanley improved cylinder cage with queen-cells, postpaid, 6 cts. each, or \$5.00 per 100. Write me for queen-breeders' supplies.

ARTHUR STANLEY,
1907 Washington Blvd., Chicago, Ill.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts. prepaid in La. Root's goods for sale. Beeswax wanted; 26 cts. cash, 27 trade.

J. F. ARCHDEKIN, Bordlonville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference.

E. E. VROOMAN & Co., 834 F., Washington, D. C.

WANTS AND EXCHANGES

WANTED.—To buy a Root extractor, cheap.

ARBA BRUTUS, Pine Village, Warren Co., Ind.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

YOU CAN DO BETTER ON A SOUTHERN FARM. Send for a year's subscription free to our beautifully illustrated magazine, *The Southern Homeseeker*, which tells all about good low-priced land and southern opportunities. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list.

JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50.

J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies.

J. H. M. COOK, 70 Cortlandt St., N. Y.

FOR SALE.—Untested golden Italian queens, 60 cts.

J. F. MICHAEL, Winchester, Ind.

Rhode Island northern-bred Italian queens, \$1. Circular.

O. E. TULIP, Arlington, R. I.

Try my MAPLEWOOD queens. Sure to please. One dollar each.

GEORGE H. REA, Reynoldsville, Pa.

Golden-all-over-queens of quality. Untested, 75 cts.; tested, \$1.50.

A. O. HEINZEL, Rt. 3, Lincoln, Ill.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

QUEENS THAT COUNT.—See our adv. elsewhere in this issue. GEO. W. PHILLIPS, Lebanon, Ohio.

Italian untested queens, \$1 each; \$5 for 6; \$9 per dozen. DOOLITTLE & CLARK, Marietta, N. Y.

FOR SALE.—40 stands bees in section hives, eight-frame. THOMAS HARTLEY, Sutherland, Fla.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Three-banded Italian Queens; 1, \$1.00; 6, \$5.00; 12, \$9.00; Moore's strain. Satisfaction guaranteed. F. L. JOHNSON, Mt. Airy, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

Northern-bred Italian queens of the E. E. Mott strain. July, 75 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y. East End.

FOR SALE.—200 strong colonies with extracting equipment; unlimited range; continuous honey-flow. No disease. J. O. HALLMAN, Unadillo, Ga.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Silver City, N. C.

Keep your bees free from disease, and have strong colonies, by using a Keystone Golden queen at \$1.00 each; 6 for \$5.00. WILL H. CARL, Elysburg, Pa.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORBLING APIARIES, Button Willow, Kern Co., Cal.

Italian Queens of Quality; satisfaction guaranteed. Introductory price 60 cts. each. W. D. ROTH, Earlington, Pa.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—1 lb. three-band Italian bees, \$1.00; untested queen, 65 cts.; tested, \$1.00; select tested, \$1.25. Rosedale Apiaries. J. B. MARSHALL & SON, Big Bend, La.

Golden and three-banded Italians: 1 untested, 85 cts.; 6, \$4.80; 1 tested, \$1.25; 6, \$7.20. Satisfaction guaranteed. Bees, \$1.25 per lb. D. L. DUTCHER, Bennington, Mich.

Italian queens as good as can be produced. Untested, 50 cts. each; select untested, 60 cts. each; tested, \$1.00 each. Safe arrival; no disease. W. J. FOREHAND & SONS, Ft. Deposit, Ala.

H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 70 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

QUEENS OF QUALITY.—The "genuine quality" kind of dark Italians, bred for business. Untested queens by return mail, 75 cts. each; \$8.00 per doz. Circular. J. I. BANKS, Dowelltown, Tenn.

Golden Italian queens that produce golden bees: the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

Large well-bred three-band Italian queens by return mail; 1, \$1.00; 6, \$5.00; 12, \$9.00; guaranteed purely mated, select tested, \$1.50; full colonies, 10-frame, \$8.00; 8-frame, \$6.00, queen included. S. G. CROCKER, JR., Roland Park, Md.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, Box 338J, Rt. 6, San Jose, Cal.

FOR SALE.—Fine Italian queens, three-banded; best that can be produced. Safe arrival and satisfaction guaranteed. Untested, 60 cts. each; 12, \$7.20; tested, \$1.00 each. J. F. ARCHDEKIN, Bordlonville, La.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed. A. J. SEAVEY, Rt. 2, Farmington, Maine.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

FOR SALE.—Italian Bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR Co., Newark, N. Y. (formerly Lyons).

FOR SALE.—Fine Italian queens, untested, 75 cts. each or 6 for \$4.00; select, \$1.00 each, or 6 for \$5.00. Strong three-frame Italian bees with good queens, \$4.00 each. All bees and queens healthy, free from all disease. Satisfaction guaranteed in all cases. EDW. A. REDDOUT, box 43, Lysander, N. Y.

BY RETURN MAIL.—Young tested queens, \$1.00; \$12.00 per dozen; untested, 75 cts.; \$7.00 per doz. We breed the three-band Italians only, and we breed for the best. We have never had a case of foul brood in our apiary, and we guarantee every queen sent out by us. J. W. K. SHAW & Co., Loreauville, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed.

M. BATES, Rt. 4, Greenville, Ala.

Choice Italian Carniolan or Caucasian queens: Untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery.—C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

Fine Italian queens by return mail. Select golden and three-banded, lined to select drones. Hardy, prolific honey-gatherers. Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00. Six or more at dozen rates. No disease. Safe arrival. I positively guarantee every queen to give reasonable satisfaction.

CHAS. M. DARROW, Star Route, Milo, Mo.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10.00; select tested one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

Hollopeter's strain of three-banded Italian bees and queens now ready. Bees, a full pound of the right kind for business, with young laying queens, 1 pkg., \$2.25; 6 pkg., \$12.50; 2-lb. pkg., with queen, \$3.25. Queens, bred for business, untested, each, 75 cts.; 12, \$8.00. Safe arrival in good condition guaranteed. Health certificate with each shipment. Circular free.

J. B. HOLLOPETER, queen-breeder, Pentz, Pa.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.00 each; 6, \$5.40; untested, 75 cts. each; 6, \$4.20. Bees, 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei, per frame, \$1.25; two-frame, \$2.25; eight-frame hive, \$6.50; ten-frame hive \$7.00. Write for price on large orders. Everything guaranteed to reach you in good order. No disease here. Cash must accompany your order. Please mention GLEANINGS. I. N. BANKSTON, box 315, Buffalo, Tex.

PURE ITALIAN QUEENS.—Golden or three-banded, by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

Carniolan, golden, and three-banded Italian queens. Tested, \$1.50; untested, 75 cts.; 6, \$4.20; 12, \$7.80. ½-lb. bees, 75 cts.; 1 lb., \$1.25; nuclei, per frame, \$1.25. No disease; everything guaranteed. Write for price list. C. B. BANKSTON, Buffalo, Leon Co., Tex.

HELP WANTED

WANTED AT ONCE.—A man with experience to work with bees. Good wages.

W. A. CHEEK, Merino, Col.

CONVENTION NOTICES

Owing to the large flow of honey, and not being able to get prominent beekeepers to attend, I will call the field meet off which was to be held July 27 at my house.

Fairfield, Iowa, July 5.

J. I. DANIELSON.

SEVENTH ANNUAL FIELD MEETING OF THE CONNECTICUT BEEKEEPERS' ASSOCIATION AT CONNECTICUT AGRICULTURAL COLLEGE, STORRS, CT., THURSDAY AND FRIDAY, AUGUST 3 AND 4, 1916.

PROGRAM.

THURSDAY, 2 P. M.

"Producing Comb Honey without Separators," Allen Latham.

Mr. C. P. Dadant, of Hamilton, Ill., editor of the *American Bee Journal*, and an authority on beekeeping of international renown is expected to be present and address us upon a topic to be announced later. This is a rare opportunity for the members of our association to meet a distinguished pioneer and expert in our industry.

"Foul Brood and Honey Prospects in Connecticut," August Hillman.

Demonstrations at the college apiary by Inspectors A. W. Yates and H. W. Coley.

8:00 P. M.—Question-box and round-table talk.

FRIDAY, 9 A. M.

"Requirements of Successful Wintering," O. S. Rexford.

"Production and Marketing of Extracted Honey," D. R. Bristol.

"Requeening: How? When? Why?" A. E. Crandall.

Those members who attended our field meeting at Storrs last year will need no urging to attend this one, and those who have never yet attended we refer to those who have, for a complete report of the royal good time we enjoyed and the many interesting things seen. Meals cost at the rate of 50 cts. for single meal or 3 for \$1.00. Rooms and beds furnished without charge to those providing their own sheets, pillow-cases, and blankets; otherwise the charge is 50 cts. per night.

Transportation by auto-bus from Willimantic is 50 cts. each way. By special arrangement with Storrs Garage our members will be carried, upon presentation of their membership cards, for 40 cts. each way. These autos leave Willimantic at 10 A. M. and 6 P. M. Returning leave the college at 8 A. M. and 3 P. M.

Members may accompany their wives or husbands.

L. WAYNE ADAMS, Sec'y.

15 Warner St., Hartford, Ct.

ANNUAL FIELD-DAY MEETING OF MASSACHUSETTS SOCIETY OF BEEKEEPERS.

The annual field-day meeting of the society will be held at the Glenwood Farm (summer home of Frank R. Sweet), West Mansfield, Mass., Saturday, July 29, 1916.

Social hour, 10:30 to 11:30.

Basket lunch, 11:30 to 12:00.

Business session at 12. Meeting called to order by President Frisbee.

Action on new members.

Address by Prof. A. C. Miller, Inspector of Apiaries in Rhode Island.

Prof. Burton N. Gates, Inspector of Apiaries in Massachusetts, and C. P. Dadant, of Hamilton, Ill., editor of *The American Bee Journal*, have been invited to address the meeting.

Addresses by prominent beekeepers.

PRIZES.

No. 1. For the best twelve sections of honey: A baby hive of bees, donated by Henry W. Britton, Stoughton, Mass.

No. 2. For the next best: A copper smoker, donated by Frank R. Sweet, West Mansfield.

No. 3. For the next best: A queen-bee, donated by E. Clinton Britton, Canton.

No. 4. The person who, up to our November, 1916, meeting, shall have brought the largest number of new members into the society will receive an observatory hive.

No. 5. The person who introduces the second largest number of new members, a baby hive.

Other matter of interest—non-swarming hives,

fancy fowls, turkeys, 1870 hive, queen-mating hives used by the late W. O. Sweet in 1860, and a medal won by him at the Horticultural Hall, Boston; old hive made by Mr. H. N. Nason.

Trains.—West Mansfield trains leave South Station, Boston, at 9:03 and 12:34. Boston trains leave West Mansfield at 2:52 and 5:52 P. M. No electric cars near.

PHILIP S. CRICHTON, Secretary.

75 Westland Avenue, Boston.

Field-day Committee: Frank R. Sweet, West Mansfield; Henry W. Britton, Stoughton; Lyman E. Ware, Boston.

Bring basket lunch. Ice cream and coffee will be furnished by Mr. Sweet. Automobiles at station. Stoughton, Mass. HENRY W. BRITTON.

BEE-LINE QUEENS

Golden and Three-banded Italians

From Caraway's prize-winning stock. Every queen purchased of me I will guarantee to give satisfaction. If she does not I will replace her with another queen or refund your money. They are hustlers, long lived, not inclined to build burr-comb, cap their honey white, and are not given to swarming, and are gentle to work with.

My bees and queens are winners of over 100 first premiums in the past eight years. This speaks for itself. If you are going to buy queens you cannot do better than buy the Bee-Line Queens.

Queens are postpaid, and safe arrival is guaranteed to all points in United States and Canada. No diseases of any kind in my apiaries.

State inspector's health certificate with each shipment.

PRICES FROM MAY 10 TO NOVEMBER 1.

Italian Queens: Untested.....one for 75 cts.;....six for \$4.00;....twelve for \$ 7.75
 Testedone for \$1.00;....six for 5.00;....twelve for 10.00
 Select Testedone for \$1.50;....six for 9.00;....twelve for 17.50
 Untested by the 100, \$60.00; breeding queens, fair, \$5.00; extra select, \$10.00

B. M. Caraway, Mathis, Texas

Bee-line Apiaries

Reference: Mathis First State Bank, Mathis, Texas.

LOCKHART'S SILVER-GRAY CARNIOLANS.

"LINE BRED" for the past 30 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & Co., Lake George, N. Y.

DEAR SIR:—I want another of your fine select untested Carniolan queens. I am more than satisfied with your strain of bees in the past, for they have rid my yards of all European foul brood.

Sierra Madre, Cal., June 27, 1916.

HAROLD DAVINES.

F. A. LOCKHART & CO., Lake George, New York.





Queens--Queens--Queens. We are breeding from the best three-banded Italian stock. Untested, 50 cts.; select untested, 60 cts.; tested, \$1.00; select tested, \$1.50 each. We have been breeding queens for more than 25 years. We guarantee safe arrival, no disease, and every one purely mated.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALABAMA




THE COAST LINE TO
MACKINAC
DETROIT
CLEVELAND, BUFFALO, NIAGARA FALLS
TOLEDO, PT. HURON, ALPENA, ST. IGNACE.


A REAL VACATION
The Water Way is the Only Way

The Great Lakes is the mecca for particular and experienced travelers on business and pleasure trips. The D. & C. Line Steamers embody all the qualities of speed, safety and comfort. The freedom of the decks, the cool, refreshing lake breezes, the commodious state rooms and unexcelled cuisine, make life aboard these floating palaces a source of enjoyment.

"D. & C. A SERVICE GUARANTEE"



During Summer Season the Two Giants of the Great Lakes, Strs. City of Detroit III and City of Cleveland III, operate daily service between Detroit and Buffalo; daily service between Detroit and Cleveland, also delightful day trips during July and August, as well as two boats out of Detroit and Cleveland every Saturday and Sunday nights during these two months. **FOUR TRIPS WEEKLY FROM TOLEDO AND DETROIT TO MACKINAC ISLAND AND WAY PORTS**—From June 25th to September 10th. **SPECIAL STEAMER CLEVELAND TO MACKINAC ISLAND. TWO TRIPS WEEKLY. NO STOPS ENROUTE EXCEPT AT DETROIT EVERY TRIP.** Daily service between Toledo and Put-in-Bay, June 10th to September 10th.

YOUR RAILROAD TICKETS ARE ACCEPTED

On D. & C. Line steamers for transportation between Detroit and Cleveland, Detroit and Buffalo, either direction.
 Send two cent stamp for illustrated pamphlet and Great Lakes Map. Address
 L. G. Lewis, G. P. A., Detroit, Mich.

DETROIT & CLEVELAND NAVIGATION COMPANY

PHILIP H. McMILLAN, Pres. A. A. SCHANTZ, Vice-Pres. & Genl. Mgr.
 All D. & C. Steamers arrive and depart Third Avenue Wharf. Central Standard Time.



By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;
 with other goods, 70c.

OLD COMB AND CAPPINGS rendered
 into wax with our hydraulic wax-press.
 Perfect work. We buy your wax at high-
 est market price. Write us.

THE FRED W. MUTH CO.
 204 Walnut Street Cincinnati, Ohio

Be Efficient in
BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated, \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

*The A. I. Root Company, Medina, Ohio.
Please send me the items checked above.*

I enclose \$.....to cover the cost.

Name

Street Address or R. F. D.....

Town

State

TRADE NOTES

MOLDED TOP FRAMES.

We have in stock, packed 100 to the box, about two thousand Hoffman frames with 19-inch top-bar molded on the under side instead of with double groove and wedge. These we offer, to close out, at \$3.00 per 100, and 200 metal-spaced, with the same style of top-bar at \$3.50 per 100.

SEED.

We have closed out our stock of buckwheat seed, and will have no more to furnish. We can still supply the several kinds of sweet-clover seed; but our supply is limited; and when sold out we will not carry it any more. We have a surplus stock of annual yellow on which we ask for offers; can supply about 2000 lbs. at your price. Make us an offer.

CHOICE SECOND-HAND CANS.

Why spend money for new cans when you can buy for half price good second-hand ones, free from rust, and satisfactory, for even white honey if carefully cleaned before filling? We do not save the poor ones, but only those which are good enough to use again. We have a supply at Medina, Philadelphia, and New York, at \$4.00 for 10 cases, \$8.50 for 25 cases; \$30 for 100 cases of two 60-lb. cans in good boxes.

BEEWAX MARKET LOWER.

We have had an unusual number of offerings of beeswax from beekeepers as well as dealers for this season of the year, and have an unusually large stock on hand. For several years before the war there was a shortage of wax at this season of the year, and prices reached their highest level in May and June. Till further notice we quote 27 cts. cash, 29 trade, delivered at Medina for average wax.

THE A. I. ROOT COMPANY, Medina, Ohio.

**"The Management
of Out-apiaries"**

72-page book by the well-known
writer, G. M. Doolittle, New York

Non-swarming, or the control of swarms in the home yard, is a comparatively easy problem; but the securing of perfect control of the swarming impulse in four or five yards located some distance from your dwelling is not so easily accomplished. The author tells how he secured this and an average of 114½ lbs. of comb honey in a poor season. His latest methods are fully described in the fourth edition of the above. Price 50c postpaid. Order now from the publishers.

The A. I. Root Co., Medina, Ohio